USER'S MANUAL

notebook

V12.3.10

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R&TTE Directive

This device is in compliance with the essential requirements and other relevant provisions of the R&TTE Directive 1999/5/EC.

This device will be sold in the following EEA countries: Austria, Italy, Belgium, Liechtenstein, Denmark, Luxembourg, Finland, Netherlands, France, Norway, Germany, Portugal, Greece, Spain, Iceland, Sweden, Ireland, United Kingdom, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Slovakia, Poland, Slovenia.

CE Marking

This device has been tested to and conforms to the regulatory requirements of the European Union and has attained CE Marking. The CE Mark is a conformity marking consisting of the letters "CE". The CE Mark applies to products regulated by certain European health, safety and environmental protection legislation. The CE Mark is obligatory for products it applies to: the manufacturer affixes the marking in order to be allowed to sell his product in the European market.

This product conforms to the essential requirements of the R&TTE directive 1999/5/EC in order to attain CE Marking. A notified body has determined that this device has properly demonstrated that the requirements of the directive have been met and has issued a favorable certificate of expert opinion. As such the device will bear the notified body number 0560 after the CE mark.

The CE Marking is not a quality mark. Foremost, it refers to the safety rather than to the quality of a product. Secondly, CE Marking is mandatory for the product it applies to, whereas most quality markings are voluntary.

FCC Statement
(Federal Communications Commission)

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the service representative or an experienced radio/TV technician for help.

Operation is subject to the following two conditions:

1. This device may not cause interference.

   And

2. This device must accept any interference, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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Warning

Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the manufacturer for compliance with the above standards could void your authority to operate the equipment.

EuP-Standby and Off Mode Power Consumption Statement:

The figures below note the power consumption of this computer in compliance with European Commission (EC) regulations on power consumption in off mode or standby mode:

*   Standby Mode   < 2W
*   Off Mode   < 1W

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock, and injury to persons when using any electrical equipment:
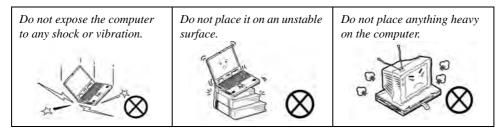
1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using this equipment with a telephone line (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit (Full Range AC/DC Adapter - AC Input 100 - 240V, 50 - 60Hz DC Output 20V, 15A (**300W**) minimum).

This Computer's Optical Device is a Laser Class 1 Product

Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:
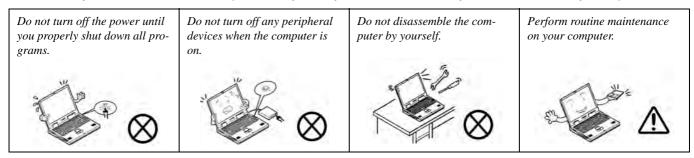
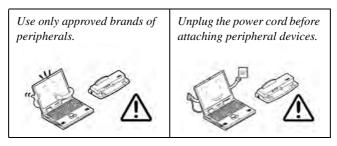1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

Do not expose the computer to any shock or vibration.	*Do not place it on an unstable surface.*	*Do not place anything heavy on the computer.*

2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

Do not expose it to excessive heat or direct sunlight.	*Do not leave it in a place where foreign matter or moisture may affect the system.*	*Don't use or store the computer in a humid environment.*	*Do not place the computer on any surface that will block the Vents/Fan Intakes.*

3. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.

4. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.

Do not turn off the power until you properly shut down all programs.	*Do not turn off any peripheral devices when the computer is on.*	*Do not disassemble the computer by yourself.*	*Perform routine maintenance on your computer.*

5. **Take care when using peripheral devices**.

Use only approved brands of peripherals.	*Unplug the power cord before attaching peripheral devices.*

Power Safety
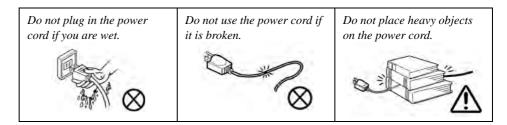
The computer has specific power requirements:

> ☼
>
> **Power Safety Warning**
>
> Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

- Only use a power adapter approved for use with this computer.
- Your AC/DC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies (i.e. AC/DC adapter or car adapter).

Do not plug in the power cord if you are wet.	*Do not use the power cord if it is broken.*	*Do not place heavy objects on the power cord.*

Polymer Battery Precautions

Note the following information which is specific to polymer batteries only, and where applicable, this overrides the general battery precaution information overleaf.

• Polymer batteries may experience a slight expansion or swelling, however this is part of the battery's safety mechanism and is not a cause for concern.
• Use proper handling procedures when using polymer batteries. Do not use polymer batteries in high ambient temperature environments, and do not store unused batteries for extended periods.

See also the general battery precautionary information overleaf for further information.

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not remove any batteries from the computer while it is powered on.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

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Battery Disposal & Caution

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Cleaning

Do not apply cleaner directly to the computer; use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Servicing

Do not attempt to service the computer yourself. Doing so may violate your warranty and expose you and the computer to electric shock. Refer all servicing to authorized service personnel. Unplug the computer from the power supply. Then refer servicing to qualified service personnel under any of the following conditions:

- When the power cord or AC/DC adapter is damaged or frayed.
- If the computer has been exposed to rain or other liquids.
- If the computer does not work normally when you follow the operating instructions.
- If the computer has been dropped or damaged (do not touch the poisonous liquid if the LCD panel breaks).
- If there is an unusual odor, heat or smoke coming from your computer.

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Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before turning the computer on.

Travel Considerations

Packing

As you get ready for your trip, run through this list to make sure the system is ready to go:

1. Check that the battery pack and any spares are fully charged.
2. Power off the computer and peripherals.
3. Close the display panel and make sure it's latched.
4. Disconnect the AC/DC adapter and cables. Stow them in the carrying bag.
5. The AC/DC adapter uses voltages from 100 to 240 volts so you won't need a second voltage adapter. However, check with your travel agent to see if you need any socket adapters.
6. Put the notebook in its carrying bag and secure it with the bag's straps.
7. If you're taking any peripherals (e.g. a printer, mouse or digital camera), pack them and those devices' adapters and/or cables.
8. Anticipate customs - Some jurisdictions may have import restrictions or require proof of ownership for both hardware and software. Make sure your "papers" are handy.

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Power Off Before Traveling

Make sure that your notebook is completely powered off before putting it into a travel bag (or any such container). Putting a notebook which is powered on in a travel bag may cause the Vents/Fan Intakes to be blocked. To prevent your computer from overheating make sure nothing blocks the Vent/Fan Intakes while the computer is in use.

On the Road

In addition to the general safety and maintenance suggestions in this preface, and Chapter 8: Troubleshooting, keep these points in mind:

Hand-carry the notebook - For security, don't let it out of your sight. In some areas, computer theft is very common. Don't check it with "normal" luggage. Baggage handlers may not be sufficiently careful. Avoid knocking the computer against hard objects.

Beware of Electromagnetic fields - Devices such as metal detectors & X-ray machines can damage the computer, hard disk, floppy disks, and other media. They may also destroy any stored data - Pass your computer and disks around the devices. Ask security officials to hand-inspect them (you may be asked to turn it on). **Note**: Some airports also scan luggage with these devices.

Fly safely - Most airlines have regulations about the use of computers and other electronic devices in flight. These restrictions are for your safety, follow them. If you stow the notebook in an overhead compartment, make sure it's secure. Contents may shift and/or fall out when the compartment is opened.

Get power where you can - If an electrical outlet is available, use the AC/DC adapter and keep your battery(ies) charged.

Keep it dry - If you move quickly from a cold to a warm location, water vapor can condense inside the computer. Wait a few minutes before turning it on so that any moisture can evaporate.

Developing Good Work Habits

Developing good work habits is important if you need to work in front of the computer for long periods of time. Improper work habits can result in discomfort or serious injury from repetitive strain to your hands, wrists or other joints. The following are some tips to reduce the strain:

- Adjust the height of the chair and/or desk so that the keyboard is at or slightly below the level of your elbow. Keep your forearms, wrists, and hands in a relaxed position.
- Your knees should be slightly higher than your hips. Place your feet flat on the floor or on a footrest if necessary.
- Use a chair with a back and adjust it to support your lower back comfortably.
- Sit straight so that your knees, hips and elbows form approximately 90-degree angles when you are working.
- Take periodic breaks if you are using the computer for long periods of time.

Remember to:
- Alter your posture frequently.
- Stretch and exercise your body several times a day.
- Take periodic breaks when you work at the computer for long periods of time. Frequent and short breaks are better than fewer and longer breaks.

Lighting

Proper lighting and a comfortable viewing angle can reduce eye strain and shoulder and neck muscle fatigue.

• Position the display to avoid glare or reflections from overhead lighting or outside sources of light.
• Keep the display screen clean and set the brightness and contrast to levels that allow you to see the screen clearly.
• Position the display directly in front of you at a comfortable viewing distance.
• Adjust the display-viewing angle to find the best position.

LCD Screen Care

To prevent **image persistence** on LCD monitors (caused by the continuous display of graphics on the screen for an extended period of time) take the following precautions:

• Set the *Windows* **Power Plans** to turn the screen off after a few minutes of screen idle time.
• Use a rotating, moving or blank screen saver (this prevents an image from being displayed too long).
• Rotate desktop background images every few days.
• Turn the monitor off when the system is not in use.

LCD Electro-Plated Logos

Note that in computers featuring a raised LCD electro-plated logo, the logo is covered by a protective adhesive. Due to general wear and tear, this adhesive may deteriorate over time and the exposed logo may develop sharp edges. Be careful when handling the computer in this case, and avoid touching the raised LCD electro-plated logo. Avoid placing any other items in the carrying bag which may rub against the top of the computer during transport. If any such wear and tear develops contact your service center.

Preface

Contents

Quick Start Guide

Storage Devices, Mouse, Audio & Printer

Power Management

Drivers & Utilities

BIOS Utilities

Upgrading The Computer

Specifications

Chapter 1: Quick Start Guide

Overview

This Quick Start Guide is a brief introduction to the basic features of your computer, to navigating around the computer and to getting your system started. The remainder of the manual covers the following:

- **Chapter 2**   A guide to using some of the main features of the computer e.g. the **storage devices** (**hard disk**, **optical device**, **Multi-In-1 card reader**), **Game Keys, TouchPad** & **Mouse, Audio Features** & **Printer**.
- **Chapter 3**   The computer's **power** management options.
- **Chapter 4**   The installation of the **drivers** and utilities essential to the operation or improvement of some of the computer's subsystems.
- **Chapter 5**   An outline of the computer's built-in software or **BIOS** (Basic Input Output System).
- **Chapter 6**   Instructions for **upgrading** your computer.
- **Chapter 7**   A quick guide to the computer's **RAID**, **PC Camera, Wireless LAN, Fingerprint** and **Bluetooth & WLAN Combo** modules (some of which may be **optional** depending on your purchase configuration).
- **Chapter 8**   A **troubleshooting** guide.
- **Appendix A** Definitions of the **interface**, **ports**/**jacks** which allow your computer to communicate with external devices.
- **Appendix B** Information on the **Control Center**.
- **Appendix C** Information on the **NVIDIA** Video driver controls.
- **Appendix D** The computer's **specification**.

Advanced Users

If you are an advanced user you may skip over most of this Quick Start Guide. However you may find it useful to refer to *"Drivers & Utilities" on page 4 - 1*, *"BIOS Utilities" on page 5 - 1* and *"Upgrading The Computer" on page 6 - 1* in the User's Manual. You may also find the notes marked with a 🖉 of interest to you.

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Notes

Check the light colored boxes with the mark above to find detailed information about the computer's features.

Beginners and Not-So-Advanced Users

If you are new to computers (or do not have an advanced knowledge of them) then the information contained in this Quick Start Guide should be enough to get you up and running. Eventually you should try to look through all the documentation (more detailed descriptions of the functions, setup and system controls are covered in the remainder of the User's Manual), but do not worry if you do not understand everything the first time. Keep this manual nearby and refer to it to learn as you go. You may find it useful to refer to the notes marked with a 🖉 as indicated in the margin. For a more detailed description of any of the interface ports and jacks see *"Interface (Ports & Jacks)" on page A - 1*.

Warning Boxes

No matter what your level please pay careful attention to the warning and safety information indicated by the ☼ symbol. Also please note the safety and handling instructions as indicated in the *Preface*.

Model Differences

This notebook series includes **two** different model types (only **Model B** computers support 3D). Note that your model may appear slightly different from those pictured in this manual.

Not Included

Operating Systems (e.g. *Windows 7*) and applications (e.g. word processing, spreadsheet and database programs) have their own manuals, so please consult the appropriate manuals.

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Drivers

If you are installing new system software, or are re-configuring your computer for a different system, you will need to install the appropriate drivers. Drivers are programs which act as an interface between the computer and a hardware component e.g. a wireless network module. It is very important that you install the drivers in the order listed in *Table 4 - 1, on page 4 - 3*. You will be unable to use most advanced controls until the necessary drivers and utilities are properly installed. If your system hasn't been properly configured (your service representative may have already done that for you), refer to *"Drivers & Utilities" on page 4 - 1* for installation instructions.

Ports and Jacks

See *"Ports and Jacks" on page A - 2* for a description of the interface (ports & jacks) which allow your computer to communicate with external devices, connect to the internet etc.

System Software

Your computer may already come with system software pre-installed. Where this is not the case, or where you are re-configuring your computer for a different system, you will find the *Windows 7 (with Service Pack 1 installed)* operating system is supported.

Note: In order to run *Windows 7 (SP1)* without limitations or decreased performance, your computer requires a minimum **1GB** of system memory (RAM).

RAID & AHCI Setup

Note that setting up a RAID, or AHCI mode, needs to be done prior to installing the *Windows OS* (see *"Setting Up SATA RAID or AHCI Mode" on page 7 - 2*).

System Startup

1. Remove all packing materials, and place the computer on a stable surface.
2. Securely attach any peripherals you want to use with the notebook (e.g. keyboard and mouse) to their ports.
3. Attach the AC/DC adapter to the DC-In jack at the rear of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
4. Use one hand to raise the lid/LCD to a comfortable viewing angle (it is preferable not to exceed 135 degrees); use the other hand (as illustrated in *Figure 1 - 1* below) to support the base of the computer (**Note**: **Never** lift the computer by the lid/LCD).
5. Raise the lid/LCD to a comfortable viewing angle, and press the power button.

135°

> ✏
> **Shutdown**
>
> Note that you should always shut your computer down by choosing the **Shut Down** command from the **Start** menu in *Windows 7*. This will help prevent hard disk or system problems.

Figure 1 - 1 **- Computer with AC/DC Adapter Plugged-In/Opening the Lid/LCD**

Figure 1 - 2
LCD Panel Open & Top View

1. Built-In PC Camera
2. Built-In Microphone
3. LCD
4. LED Status Indicators
5. Touch Sensor Instant Keys
6. Speakers
7. 3D IR Emitter (**Model B** Only)
8. Power Button
9. Keyboard
10. TouchPad and Buttons
11. Fingerprint Reader Module
12. LCD Panel Color LED

System Map: LCD Panel Open & Top View

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Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices (e.g. WLAN or Bluetooth) aboard aircraft is usually prohibited. Make sure any wireless modules are OFF if you are using the computer aboard aircraft.

Use the appropriate function key combination to toggle power to any wireless modules, and check the indicators to see if any modules are powered on or not (see *Table 1 - 2, on page 1 - 8*).

LED Indicators

The two sets of LED indicators (**LED Status Indicators** and **LED Power Indicators**) display helpful information about the current status of the computer.

Icon	Color	Description	Icon	Color	Description
	Blinking Blue	Hard Disk Activity		Orange	DC Power is Plugged In
	Blue	Number Lock is Activated		Green	The Computer is On
				Blinking Green	The Computer is In Sleep Mode
	Blue	Caps Lock is Activated		Blinking Orange*	The Powered USB Port is On*
				Orange	The Battery is Charging
	Blue	Scroll Lock is Activated		Blinking Orange	The Battery has Reached Critically Low Power Status
				Green	The Battery is Fully Charged

Table 1 - 1 **- LED Status Indicators**

*Note: The powered USB 3.0/e-SATA port (see *Figure 1 - 7 on page 1 - 17*) may be toggled on /off by means of the **Fn + Power Button** key combination (**press for around 1 to 2 seconds** to toggle). When the powered USB port is on it will supply power (**for charging devices only, not for operating devices**) when the system is off but still powered by the AC/DC adapter plugged into a working outlet, or powered by the battery with a capacity level above 20% (this may not work with certain devices - see page *8 - 13*).

Touch Sensor Instant Keys

Press the Touch Sensor Instant Keys on the computer to toggle the appropriate function on/off. When a module is powered on the appropriate icon will be highlighted blue.

Icon	Description
V− ···························· V+ (BT) (((ı))) ◻	
◁	Mute Toggle
((BT))	Bluetooth Module (**optional**) Power Toggle
(((ı)))	Wireless LAN Module (**optional**) Power Toggle
◻	PC Camera Module Power Toggle
V− ···························· V+	Volume Control (Press and hold your finger at either end V−/V+ of the volume control to adjust the system volume)
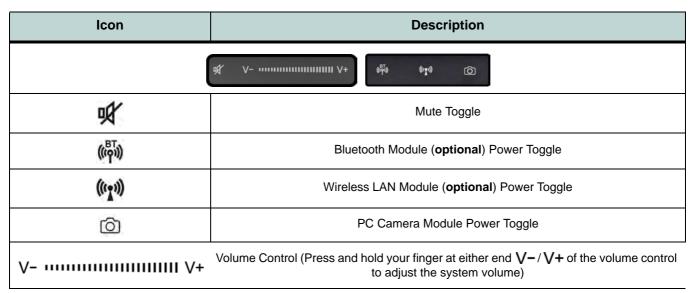
Table 1 - 2 **- Touch Sensor Instant Keys**

Note that you can also use the function key combinations for all of the functions above (see page *1 - 12*).

Keyboard

The keyboard has an embedded numerical keypad for easy numeric data input, and features function keys to allow you to change operational features instantly. See *Table 1 - 5, on page 1 - 13* for full function key combination details.

Figure 1 - 3 **- Keyboard**

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Other Keyboards

If your keyboard is damaged or you just want to make a change, you can use any standard USB keyboard. The system will detect and enable it automatically. However special functions/hot-keys unique to the system's regular keyboard may not work.

Num Lk & Scr Lk

Hold down the **Fn Key** and Scr Lk/Num Lk to enable scroll lock/number lock, and check the LED indicator for status.

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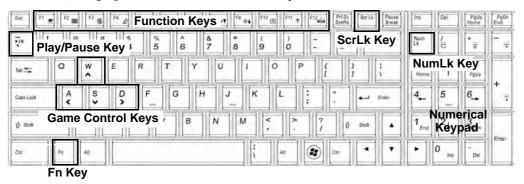
Special Characters

Some software applications allow the number-keys to be used with **Alt** to produce special characters. These special characters can only be produced by using the numeric keypad. Regular number keys (in the upper row of the keyboard) will not work. Make sure that **NumLk** is on.

Keyboard LED

Press **Fn** plus the ⌨️ **2** key to toggle the keyboard LED on/off. The keyboard LED may be configured using the **Fn + key combination** outlined in the table below. In addition press **Fn** plus the ⌨️ **1** key to launch the keyboard backlight application to configure the settings (see overleaf).

Keyboard LED Function key Combinations		
Fn + ⌨️	**1** Launch the Keyboard Backlight Application	
Fn + ⌨️	**2** Toggle the Keyboard Backlight On/Off	
Fn + ⌨️	**3** Keyboard LED Illumination Decrease (for **Custom Mode** only - see *Table 1 - 4, on page 1 - 12*)	
Fn + ⌨️	**4** Keyboard LED Illumination Increase (for **Custom Mode** only - see *Table 1 - 4, on page 1 - 12*)	
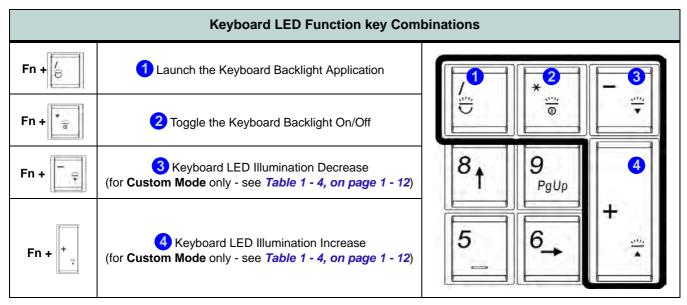
Table 1 - 3 **- Keyboard LEDs**

Keyboard Backlight Application

The **keyboard Backlight application** can be accessed by pressing the **Fn** plus ⬚ key. Click the **Help** button ? in the application to display the configuration keys.

- Click the **Custom** button 🔵 to display the three sections of the keyboard which may be configured.
- Click a section of the keyboard and the color buttons will be displayed.
- Click a **color swatch** to apply the color to the selected section when not overidden by any effect applied.
- Click on any of the effect buttons to apply random colors, wave or flashing effects etc (see over).

Figure 1 - 4 **- Keyboard Backlight Application**

Keyboard LED 1 - 11

Effects Buttons & Help

LED Effects Buttons			
	Random Color		Up/Down Wave
	Dancing Effect		Breathing (All Colors)
	Tempo Beat		Cycle (Colors as Selected in RGB)
	Flashing		**Custom Mode** - Display & Configure Keyboard Sections & Colors

① ⏻ Launch keyboard backlight application
② ⏻ Keyboard backlight ON/OFF
Fn ③ ⏻ Reduce Keyboard backlight
④ ⏻ Increase Keyboard backlight

① ② ③ ④

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Illumination Keys

Note that the keyboard illumination (increase/decrease) keys may be used to configure the keyboard LED in **Custom Mode** only.

Table 1 - 4 **- LED Effects Buttons & Help**

Function Keys & Visual Indicators

The **function keys** (F1 - F12 etc.) will act as **hot keys** when pressed while the **Fn** key is held down. Visual indicators (see the table below) are available when the Hot Key driver is installed (see *"Hot Key" on page 4 - 7*).

Keys	Function/Visual Indicators		Keys	Function/Visual Indicators	
Fn + ~	Play/Pause (in Audio/Video Programs)		Fn + Esc	**Control Center** Toggle (see over)	
Fn + F1	Touchpad Toggle		Fn + F8/F9	Brightness Decrease/Increase	
Fn + F2	Turn LCD Backlight Off (Press a key to or use Touchpad to turn on)		Fn + F10	PC Camera Power Toggle	
Fn + F3	Mute Toggle		Fn + F11	WLAN Module Power Toggle	
Fn + F4	Sleep Toggle		Fn + F12	Bluetooth Module Power Toggle	
Fn + F5/F6	Volume Decrease/ Increase		Fn + **Power Button**	Powered USB 3.0 Port Power Toggle (press for around 1 to 2 seconds to toggle)	
Fn + F7	Display Toggle		Fn +	Keyboard LED Toggle (see page *1 - 10*)	
Fn + **1**	Fan Control Toggle - Toggle between Automatic Fan Control / Full Power		Fn + **5**	Audio Toggle - Toggle between Stereo and 5.1 Surround Sound Modes (see page *2 - 12*)	

Table 1 - 5 **- Function Keys & Visual Indicators**

Control Center

Press the **Fn** + **Esc** key combination, or **double-click the icon** in the **notification area of the taskbar** to toggle the **Control Center** on/off. The **Control Center** gives quick access to frequently used controls and enables you to quickly turn modules on/off.

Control Center

Click on any button to turn any of the **modules** (e.g. **TouchPad, Camera**) on/off.

Click on the power conservation modes to switch between **Performance**, **Balanced** or **Energy Star** modes (see page *3 - 10*). To remove the Power Conservation Modes screen just click in a blank area of the icon or press a key on the keyboard.

Click on the buttons (or just click and hold the mouse button) to adjust the slider for **Brightness/Volume**.

Click on **Display Switch** and click to choose a display mode from the menu (see page *C - 13*).

Click on **K/B LED** to turn the keyboard LED on/off.

Table 1 - 6 **- Control Center**

System Map: Front & Rear Views

Figure 1 - 5
Front & Rear Views

1. LED Power Indicators
2. Express Card Slot
3. Multi-In-1 Card Reader
4. DC-In Jack

See *Appendix A* for a more detailed description of the ports & jacks etc.

🖉

ExpressCard Slot

The ExpressCard Slot accepts either **ExpressCard/34** or **ExpressCard/54** formats.

Multi-in-1 Card Reader

The card reader allows you to use the most popular digital storage card formats:

MMC (MultiMedia Card) / RSMMC
SD (Secure Digital) / Mini SD / SDHC / SDXC
MS (Memory Stick) / MS Pro / MS Duo

Figure 1 - 6
Right View

1. Line-In Jack
2. S/PDIF-Out Jack
3. Microphone-In Jack
4. Headphone-Out Jack
5. 2 * USB 2.0 Ports
6. Sub Woofer
7. Security Lock Slot

See *Appendix A* for a more detailed description of the ports & jacks etc.

System Map: Right View

> ### 🔔
> **USB Ports**
>
> Note that the connections to the USB ports only fit one way, do not force them. USB 3.0 ports are denoted by their blue color; USB 2.0 ports are colored black.

System Map: Left View

Figure 1 - 7
Left View

1. DVI-Out Port
2. RJ-45 LAN Jack
3. HDMI-Out Port
4. Display Port
5. 2 * USB 3.0 Ports
6. Combined eSATA/ Powered USB 3.0 Port
7. Mini-IEEE 1394b Port
8. Optical Device Drive Bay

See *Appendix A* for a more detailed description of the ports & jacks etc.

 🖉

HDMI Port

Note that the HDMI Port supports video and audio signals to attached external displays (also see *"HDMI Audio Configuration" on page C - 18*). Note that THX TruStudio Pro will be disabled when you are connecting to an external display through an HDMI connection (see page *7 - 110*).

USB 3.0 Ports & USB Port Power

USB 3.0 ports are denoted by their blue color; USB 2.0 ports are colored black. Note that the USB 3.0 port requires a driver installation (see *"USB 3.0" on page 4 - 7*) and is not operational under DOS.

The powered USB 3.0 **6** /e-SATA port can supply power (**for charging devices only, not for operating devices**) when the system is off but still powered by the AC/DC adapter plugged into a working outlet, or powered by the battery with a capacity level above 20% (this may not work with certain devices - see page *8 - 12*). Toggle power to this port by using **Fn + power button** (**press for around 1 to 2 seconds** to toggle).

 🖉

Mini-IEEE 1394b Port

The Mini-IEEE 1394 port only supports **SELF POWERED** IEEE 1394 devices.

☼

Disk Eject Warning

Don't try to eject a CD/DVD while the system is accessing it. This may cause the system to "crash". Stop the disk first then eject it, or press the stop button twice.

CD/DVD Emergency Eject

If you need to manually eject a CD/DVD (e.g. due to an unexpected power interruption) you may push the end of a straightened paper clip into the emergency eject hole. Do not use a sharpened pencil or any object that may break and become lodged in the hole. Don't try to remove a floppy disk/CD/DVD while the system is accessing it. This may cause the system to "crash".

🖉

Changing DVD Regional Codes

Go to the **Control Panel** and double-click **Device Manager (Hardware and Sound)**, then click the **+** next to **DVD/CD-ROM drives**. Double-click on the DVD-ROM device to bring up the **Properties** dialog box, and select the **DVD Region** (tab) to bring up the control panel to allow you to adjust the regional code.

DVD region detection is device dependent, not OS-dependent. You can select your module's region code **5** times. The fifth selection is permanent. This cannot be altered even if you change your operating system or you use the module in another computer.

System Map: Bottom View

Figure 1 - 8
Bottom View

1. Fan Outlet/Intake
2. Component Bay Cover
3. Battery
4. HDD Bay

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🔔
Overheating

To prevent your computer from overheating make sure nothing blocks the vent(s)/fan intake(s) while the computer is in use.

🖉
Battery Information

Always completely discharge, then fully charge, a new battery before using it. Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges. See *"Power Conservation Modes" on page 3 - 10* for full instructions.

Windows 7 Start Menu & Control Panel

Most of the control panels, utilities and programs within *Windows 7* are accessed from the **Start** menu. When you install programs and utilities they will be installed on your hard disk drive, and a shortcut will usually be placed in the **Start** menu and/or the desktop. Right-click the **Start menu** icon , and then select **Properties** if you want to customize the appearance of the **Start** menu.
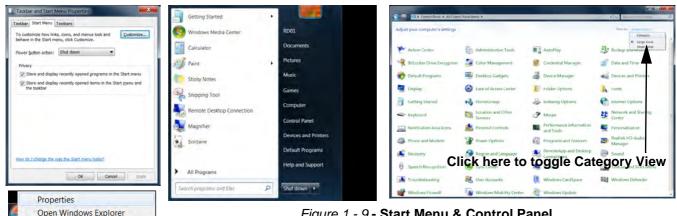
Figure 1 - 9 **- Start Menu & Control Panel**

In many instances throughout this manual you will see an instruction to open the **Control Panel**. The **Control Panel** is accessed from the **Start** menu, and it allows you to configure the settings for most of the key features in *Windows* (e.g. power, video, network, audio etc.). *Windows 7* provides basic controls for many of the features, however many new controls are added (or existing ones are enhanced) when you install the drivers. To see all controls it may be necessary to toggle off *Category View* to view the control panel icons.

Video Features

You can switch display devices, and configure display options, from the **Display** control panel (in **Appearances and Personalization**) in *Windows 7* (see over). For more detailed video information see *"NVIDIA Video Driver Controls" on page C - 1*.

To access **Display (Control Panel)** and **Screen Resolution** in *Windows*:

1.   Click **Start** and click **Control Panel**.
2.   Click **Display** (icon) - In the **Appearances and Personalization** category.
3.   Click **Adjust Screen Resolution/Adjust resolution**.

OR

4.   Alternatively you can right-click the desktop and select **Screen resolution** **1** (*Figure 1 - 10 on page 1 - 22*).
5.   Use the dropbox to select the screen **Resolution** **2** (*Figure 1 - 10 on page 1 - 22*).

🖉

NVIDIA Video Driver Controls

More detailed video controls are provided by the **NVIDIA Control Panel**. For more detailed information see *"NVIDIA Control Panel" on page 1 - 23* and *Appendix C*.

You can also access the control panels by right-clicking the desktop and selecting **NVIDIA Control Panel** (*Figure 1 - 11 on page 1 - 23*).

Screen Resolution

Video Options

Note that card types, specifications and drivers are subject to continual updates and changes. Check with your service center for the latest details on video cards supported.
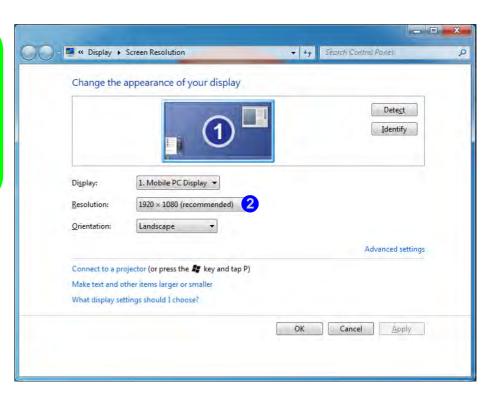
Figure 1 - 10 **- Screen Resolution**

NVIDIA Control Panel

You can access the **NVIDIA Control Panel** as follows:

1. Click **Start**, and click **Control Panel**.
2. Click **NVIDIA Control Panel** ❶ (*Figure 1 - 11*) - In the **Appearances and Personalization** category.
3. See *"NVIDIA Video Driver Controls" on page B - 1* for full details on control panels etc.
   OR
4. You can also access the control panel by right-clicking the desktop and selecting **NVIDIA Control Panel** ❷.
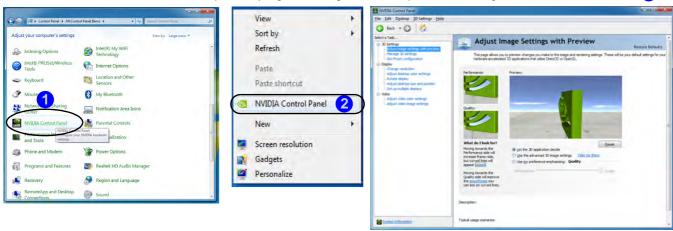
Figure 1 - 11 **- NVIDIA Control Panel**

Power Options

The **Power Options** (**Hardware and Sound** menu) control panel icon in *Windows* (see page *1 - 20*) allows you to configure power management features for your computer. You can conserve power by means of **power plans** and configure the options for the **power button**, **sleep button**, **computer lid (when closed)**, **display** and **sleep** mode from the left menu. Note that the **Power saver** plan may have an affect on computer performance.

Click to select one of the existing plans, or click *Create a power plan* in the left menu and select the options to create a new plan. Click *Change plan settings* and click *Change advanced power settings* to access further configuration options.

Pay attention to the instructions on battery care in *"Power Conservation Modes" on page 3 - 10*.
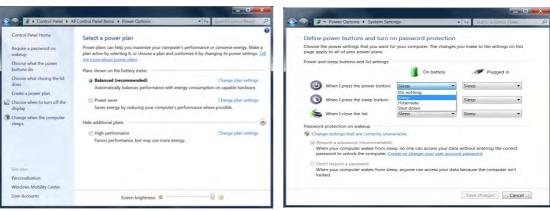
Figure 1 - 12 - **Power Options**

Chapter 2: Storage Devices, Mouse, Audio & Printer

Overview

Read this chapter to learn more about the following main features and components
of the computer:

- Hard Disk Drive
- Optical Device
- Multi-In-1 Card Reader
- ExpressCard Slot
- Audio Features
- Setup for Audio Recording

2

Hard Disk Drive

The hard disk drive(s) is(are) used to store your data in the computer. The hard disk(s) can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5 mm. The primary hard disk bay **1** is accessible from the bottom of your computer as seen below.

The computer can accommodate up to three hard disks (two in the primary bay, and one under the battery **2**), and these may be configured in **RAID**, **AHCI** or **IDE** modes. Further details on removing and inserting the hard disk are available in *"Upgrading the Hard Disk Drive(s)" on page 6 - 5* and.

Figure 2 - 1
Hard Disk Bay

Optical Device

There is a bay for a 5.25" optical (CD/DVD) device (12.7mm height). The actual device will depend on the model you purchased (see *"Storage" on page D - 3*). The optical device is usually labeled "**Drive D:**" and may be used as a boot device if properly set in the **BIOS** (see *"Boot Menu" on page 5 - 15*).

Loading Discs

To insert a CD/DVD, press the open button ❶ and carefully place a CD/DVD onto the disc tray with label-side facing up (use just enough force for the disc to click onto the tray's spindle). Gently push the CD/DVD tray in until its lock "clicks" and you are ready to start. The busy indicator ❷ will light up while data is being accessed, or while an audio/video CD, or DVD, is playing. If power is unexpectedly interrupted, insert an object such as a straightened paper clip into the emergency eject hole ❸ to open the tray.

🖉

Sound Volume Adjustment

How high the sound volume can be set depends on the setting of the volume control within *Windows*. Click the **Volume** icon on the taskbar to check the setting.

Peripherals must be connected before you turn on the system.

Figure 2 - 2
Optical Device

2

<div style="color: red; border: 2px solid red;">

🔔

CD Emergency Eject

If you need to manually eject a CD (e.g. due to an unexpected power interruption) you may push the end of a straightened paper clip into the emergency eject hole. However please do NOT use a sharpened pencil or similar object that may break and become lodged in the hole.

Disk Eject Warning

Don't try to remove a CD/DVD while the system is accessing it. This may cause the system to "crash".

</div>

Handling CDs or DVDs

Proper handling of your CDs/DVDs will prevent them from being damaged. Please follow the advice below to make sure that the data stored on your CDs/DVDs can be accessed.

Note the following:

• Hold the CD or DVD by the edges; do not touch the surface of the disc.
• Use a clean, soft, dry cloth to remove dust or fingerprints.
• Do not write on the surface with a pen.
• Do not attach paper or other materials to the surface of the disc.
• Do not store or place the CD or DVD in high-temperature areas.
• Do not use benzene, thinner, or other cleaners to clean the CD or DVD.
• Do not bend the CD or DVD.
• Do not drop or subject the CD or DVD to shock.

DVD Regional Codes

To change the DVD regional codes see *"Changing DVD Regional Codes" on page 1 - 18*.

DVD Regional Coding		
Region	**Geographical Location**	
1	USA, Canada	
2	Western Europe, Japan, South Africa, Middle East & Egypt	
3	South-East Asia, Taiwan, South Korea, The Philippines, Indonesia, Hong Kong	
4	South & Central America, Mexico, Australia, New Zealand	
5	N Korea, Russia, Eastern Europe, India & Most of Africa	
6	China	

Table 2 - 1
DVD Regional Coding

2

Figure 2 - 3
Right View

1. Card Reader

Multi-In-1 Card Reader

The card reader allows you to use some of the latest digital storage cards. Push the card into the slot and it will appear as a removable device, and can be accessed in the same way as your hard disk (s). Make sure you install the Card Reader driver (see *"Card Reader" on page 4 - 7*).

- MMC (MultiMedia Card) / RSMMC
- SD (Secure Digital) / Mini SD / SDHC / SDXC
- MS (Memory Stick) / MS Pro / MS Duo

PC adapters may be required for some of these cards and are usually supplied with them.

ExpressCard Slot

The computer is equipped with an **ExpressCard/34/54** slot that reads Express Card/34 and ExpressCard/54 formats. ExpressCards are the successors to PCMCIA (PC Cards).

ExpressCard/54 is used for applications which require a larger interface slot, e.g. CompactFlash card reader. The number denotes the card width; 54mm for the Express Card/54 and 34mm for the ExpressCard/34. Make sure you install the Express-Card driver (see *"Card Reader/ExpressCard" on page 4 - 6*).

Inserting and Removing ExpressCards

- Align the ExpressCard with the slot and push it in until it locks into place.
- To remove an ExpressCard, simply press the card to eject it.

🖉

ExpressCard Slot Cover

Make sure you keep the cover in the Express-Card slot when not in use. This will help prevent foreign objects and/or dust getting in to the ExpressCard Slot.

Figure 2 - 4
Express Card Slot

1. Card Reader

2

Figure 2 - 5
Realtek Audio Manager

Audio Features

You can configure the audio options on your computer from the **Sound** 🔊 control panel in *Windows*, or from the **Realtek HD Audio Manager** 🔊 icon in the notification area/control panel (right-click the taskbar notification area icon 🔊 to bring up an audio menu). The volume may also be adjusted by means of the **Fn** + **F5/F6** key combination (see *Table 1 - 5, on page 1 - 13*).

Right-click the icon 🔊 to access the menu above.

See *"HDMI Audio Configuration" on page C - 18* for a description of the audio configuration when connecting an HDMI supported display device.
See *"THX TruStudio Pro Audio" on page 7 - 84* for more information on the THX TruStudio Pro Audio setup.

Setup for 5.1 or 7.1 Surround Sound

To setup your system for 5.1 or 7.1 surround sound you will need to connect the audio cables to the Headphone-Out, Line-In, Microphone-In jack and S/PDIF-Out jacks (*note: the S/PDIF jack is used for 7.1 surround sound only*).

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**) and make sure you are in **Classic View**.
2. Click **Realtek HD Audio Manager** (or right-click the notification area icon 🔊 and select **Sound Manager**).
3. Click **Speakers** (tab) and click **Speaker Configuration** (tab).
4. Select **5.1 or 7.1 Speaker** from the **Speaker Configuration** pull-down menu.

Connector Settings

🖉

Auto Popup Dialog

You should enable the auto popup dialog to automatically detect when a device has been plugged-in. If disabled, double-click **connector settings** 📁 and click the box to enable the auto popup detection of plugged-in devices.

⚜

THX Audio & HDMI

Note that the THX audio effects **do not apply** to audio generated through an HDMI connection (see page *7 - 87*.).

Fn + 5 Audio Toggle

The **Fn + 5** key combination allows you to toggle the audio system between stereo and surround modes. The stereo mode will allow for a louder audio volume.

Note that if you have stereo mode enabled, and attempt to demo the speaker configuration, then the sound will only be enabled through the front and rear speakers (**see page *2 - 12***).

Figure 2 - 6
Speaker Configuration (7.1)

2

5. Plug the **front speaker** cables into the **Headphone-Out Jack**.
6. Plug in the other cables (you may require an adapter to connect each cable to the appropriate jack e.g a stereo mini to dual RCA adapter) from your speakers as follows:

- Line-In Jack = Rear Speaker Out
- Microphone-In Jack = Center/Subwoofer Speaker Out
- S/PDIF-Out Jack = Side Speaker Out (**for 7.1 Surround Sound Only**)

7. As you plug in each cable a dialog box will pop up (see *"Auto Popup Dialog" on page 2 - 9*).
8. Click to put a tick in the appropriate box according to the speaker plugged-in (e.g. Rear Speaker Out), and then click **OK** to save the setting.
9. Click **OK** to exit **Realtek HD Audio Manager**.

Figure 2 - 7
Connected Device Auto Popup

The current connected device is :	The current connected device is :	The current connected device is :
Which device did you plug in?	Which device did you plug in?	Which device did you plug in?
☑ Rear Speaker Out	☐ Line In	☐ Mic In
☐ S/PDIF-Out	☑ Side Speaker Out	☑ Center/Subwoofer Speaker Out
☑ Enable auto popup dialog, when device has been plugged in	☑ Enable auto popup dialog, when device has been plugged in	☑ Enable auto popup dialog, when device has been plugged in
OK	OK	OK

Note: Side Speaker Out is required for 7.1 Surround only.

Setup for Audio Recording

To record audio sources on your computer at optimum quality follow the instructions below:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**) and make sure you are in **Classic View**.
2. Click **Realtek HD Audio Manager** (or right-click the taskbar icon 🔊 and select **Sound Manager**).
3. Click **Microphone Effects** (tab) in **Microphone** (tab), and then click to select **Noise Suppression** (button), or adjust the **Recording Volume** level to around **60**, to obtain the optimum recording quality.
4. Click **OK** to close the control panel and save the settings.

Figure 2 - 8
Realtek Audio Manager - Recording Setup

2

Audio Notes for Fn + 5

This computer features an **Fn +5** key combination to **toggle** between standard audio and enhanced audio. Note the following which applies to **software mode audio configuration through the computer's internal speakers only** (this does not apply to surround sound when configured through external Quadrophonic, 5.1 or 7.1 speaker systems):
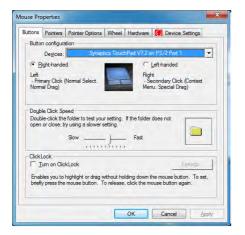
• When the **Speaker Configuration** in **Realtek HD Audio Manager** is set to **Stereo**, you can use the **Fn + 5** key combination to help increase the volume through the speakers.

• When the **Speaker Configuration** in **Realtek HD Audio Manager** is set to **5.1/ 7.1 Speaker**, the best audio configuration will be obtained with the combination of the **Speaker Configuration** set to **Quadrophonic**/**5.1/7.1 Speaker**, and the **THX TruStudio AP turned ON**.
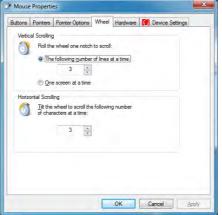
Note that the **Fn + 5** key combination is a toggle so you will need to press the key combination to test if the affect is applied or not.

TouchPad and Buttons/Mouse

The TouchPad is an alternative to the mouse; however, you can also add a mouse to your computer through one of the USB ports. The TouchPad buttons function in much the same way as a two-button mouse.

Once you have installed the TouchPad driver (see *"TouchPad" on page 4 - 7*) you can configure the functions from the Mouse control panel in *Windows*, or by double-clicking the TouchPad driver icon 🖳 in the notification area of the **taskbar**. You may then configure the TouchPad tapping, buttons, scrolling, pointer motion and sensitivity options to your preferences. Use the **Fn + F1** key combination to toggle the TouchPad on/off.

🖉

TouchPad Scrolling

This computer model series may feature different TouchPad versions.

These TouchPads may differ in their vertical scrolling function in most scrollable windows.

Some TouchPads require sliding the finger up and down on the right of the TouchPad to scroll the window. Other versions require tapping/holding down the finger at the top right or bottom right of the TouchPad to scroll the window.

Figure 2 - 9
Mouse Properties

2

> ✏
>
> **Show Video**
>
> You can get a clearer view of the gestures involved by clicking the **Show Video** option for each gesture item.
>
> Select the gesture (**Pinch Zoom, Rotating, Three Fingers Down and Three Finger Flick**) in the **Device Settings > Settings** left tree menu and click the **Show Video** button to see the demonstration video.
>
> For more details on any of the gestures see the **help** in the lower part of the right menu window.

Figure 2 - 10
**Mouse Properties -
Device Settings**

Gestures and Device Settings

The Synaptics Gestures Suite application allows you to use a specific gesture (action) on the surface of the Touchpad to perform specific actions to manipulate documents, objects and applications.

You can configure the settings from the Device Settings tab in **Mouse Properties**:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Mouse** (**Hardware and Sound**).
3. Click **Device Settings** (tab) and click **Settings**.
4. Use the menu tree on the left to access the user configurable settings.

Scrolling

The Two-Finger scrolling feature works in most scrollable windows and allows you to scroll horizontally and vertically. Place two fingers, slightly separated, on the TouchPad surface and slide both fingers in the direction required (in a straight continuous motion).

Figure 2 - 11
Scrolling Gesture

Zooming

The Pinch Zoom gesture can be used to perform the same function as a scroll wheel in *Windows* applications that support CTRL + scroll wheel zoom functionality. Place two fingers on the TouchPad (for best results use the tips of the fingers) and slide them apart to zoom in, or closer together to zoom out.

$\mathscr{P}$

Mouse Driver

If you are using an external mouse your operating system may be able to auto-configure your mouse during its installation or only enable its basic functions. Be sure to check the device's user documentation for details.

Figure 2 - 12
Zooming Gesture

2

Rotating

Use the Pivot Rotate gesture to rotate objects (e.g. photos) in 90 degree increments. Place a finger down on the left "target" zone and keep it stationary. Place another finger near the middle of the TouchPad and slide it in a circular motion around the stationary finger (clockwise or counterclockwise) to rotate the object.

Figure 2 - 13
Rotating Gesture

Three Finger-Flick/Three Fingers Down (Press)

The Three Finger-Flick gesture may be used to enhance navigation with a variety of applications such as browsing the Internet or scrolling through a photo viewer. The Three Fingers Down gesture may be used to launch user-selectable applications.

Figure 2 - 14
Flick/Press Gesture

Chapter 3: Power Management

Overview

To conserve power, especially when using the battery, your computer power management conserves power by controlling individual components of the computer (the LCD and hard disk drive) or the whole system.

This chapter covers:

- The Power Sources
- Turning On the Computer
- Power Plans
- Power-Saving States
- Configuring the Power Buttons
- Power Conservation Modes
- SLI Multi GPU Configuration & Power

The computer uses enhanced power saving techniques to give the operating system (OS) direct control over the power and thermal states of devices and processors. For example, this enables the OS to set devices into low-power states based on user settings and information from applications.

3

OS Note

Power management functions will vary slightly depending on your operating system. For more information it is best to refer to the user's manual of your operating system.

(**Note**: All pictures used on the following pages are from the **Windows 7** OS.)

3

The Power Sources

The computer can be powered by either an AC/DC adapter or a battery pack.

AC/DC Adapter

Use only the AC/DC adapter that comes with your computer. The wrong type of AC/DC adapter will damage the computer and its components (see page *D - 4*).

1. Attach the AC/DC adapter to the DC-In jack at the rear of the computer.
2. Plug the AC power cord into an outlet, and then connect the AC power cord to the AC/DC adapter.
3. Raise the lid/LCD to a comfortable viewing angle.
4. Press the power button to turn "On".

Battery

The battery allows you to use your computer while you are on the road or when an electrical outlet is unavailable. Battery life varies depending on the applications and the configuration you're using. **To increase battery life, let the battery discharge completely before recharging** (see *"How do I completely discharge the battery?" on page 3 - 15*).

We recommend that you do not remove the battery. For more information on the battery, please refer to *"Power Conservation Modes" on page 3 - 10*.

3

Turning On the Computer
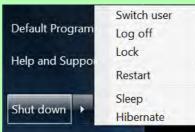
Now you are ready to begin using your computer. To turn it on simply press the power button on the front panel.

When the computer is on, you can use the power button as a Stand by/Hibernate/Shutdown hot-key button when it is pressed for less than **4 seconds** (pressing and holding the power button for longer than this will shut the computer down). Use **Power Options** in the *Windows* control panel to configure this feature.

🖉

Shut Down

Note that you should always shut your computer down by choosing the **Shut Down** command from the bottom right of the **Start** menu in *Windows*. This will help prevent hard disk or system problems.

Default Program	Switch user
	Log off
	Lock
Help and Suppo	
	Restart
	Sleep
Shut down ▶	Hibernate

🖉

Forced Off

If the system "hangs", and the **Ctrl + Alt + Del** key combination doesn't work, press the power button for **4 seconds**, or longer, to force the system to turn itself off.

Power Button as Stand by or Hibernate Button

You can use the OS's **Power Options** control panel to set the power button to send the system into Stand by or Hibernate mode (see your OS's documentation, or *"Configuring the Power Buttons" on page 3 - 8* for details).

> ✎
>
> **Resuming Operation**
>
> See *Table 3 - 1, on page 3 - 9* for information on how to resume from a power-saving state.
>
> **Password**
>
> It is recommended that you enable a password on system resume in order to protect your data.
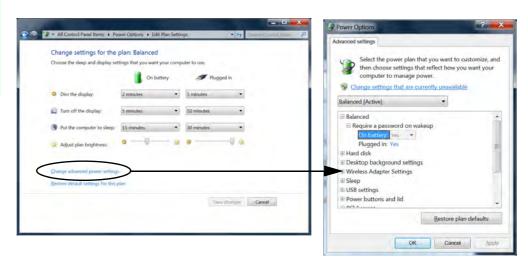
Figure 3 - 1
Power Plan Advanced Settings (Win 7)

Power Plans

The computer can be configured to conserve power by means of **power plans**. You can use (or modify) an existing **power plan**, or create a new one.

The settings may be adjusted to set the **display** to turn off after a specified time, and to send the computer into **Sleep** after a period of inactivity.

Click *Change plan settings* and then click *Change advanced power settings* to access further configuration options in **Advanced Settings**.

Each *Windows* **power plan** will also adjust the processor performance of your machine in order to save power. This is worth bearing in mind if you are experiencing any reduced performance (especially under DC/battery power).

Choose **High performance** (you may need to click **Show additional plans** to view the High performance plan) for maximum performance when the computer is powered from an AC power source. Choose the **Power saver** (bear in mind that this scheme may slow down the overall performance of the computer in order to save power) for maximum power saving when the computer is battery (DC power) powered.

Click to Show/Hide additional power plans
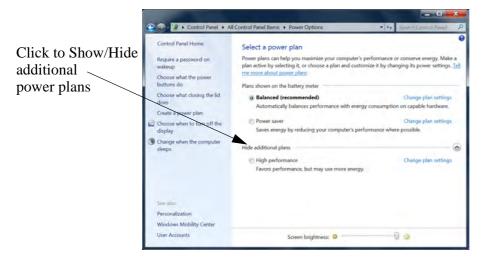
Figure 3 - 2
Power Plans (Win 7)

3

Power-Saving States

You can use power-saving states to stop the computer's operation and restart where you left off. *Win 7* uses the **Sleep, Hibernate** and **Shut Down** power-saving states.

Sleep

In **Sleep** all of your work, settings and preferences are saved to memory before the system sleeps. When you are not using your computer for a certain length of time, which you specify in the operating system, it will enter **Sleep** to save power.

The PC wakes from **Sleep within seconds** and will return you to where you last left off (what was on your desktop) without reopening the application(s) and file(s) you last used.

If your mobile PC in **Sleep** is running on battery power the system will use only a minimum amount of power. After an extended period the system will save all the information to the hard disk and shut the computer down before the battery becomes depleted.

Hibernate

Hibernate uses the least amount of power of all the power-saving states and saves all of your information on a part of the hard disk before it turns the system off. If a power failure occurs the system can restore your work from the hard disk; if a power failure occurs when work is saved only to memory, then the work will be lost. **Hibernate** will also return you to where you last left off within seconds. You should put your mobile PC into **Hibernate** if you will not use the computer for a period of time, and will not have the chance to charge the battery.

Shut down

You should **Shut down** the computer if you plan to install new hardware (don't forget to remove the battery and follow all the safety instructions in **Chapter 6**), plan to be away from the computer for several days, or you do not need it to wake up and run a scheduled task. Returning to full operation from **Shut down** takes longer than from **Sleep** or **Hibernate**.

Silent Mode

You can use **Silent Mode** to reduce power consumption and fan noise. Use the **Silent Mode** Touch Sensor Instant Key to toggle this mode on/off.

On screen visual indicators and the Touch Sensor Instant Key will display the **Silent Mode** status (see *Table 1 - 2, on page 1 - 8*).

Note **Silent Mode** may reduce computer performance.

Figure 3 - 3
Start Menu Power

> 🖉
>
> **Password Protection**
>
> It is recommended that you enable a password on wake up in order to protect your data.
>
> However you can disable this setting from the **Power Options** menu by clicking ***Require a password on wakeup*** in the left menu, and selecting the options (click ***Change settings that are currently unavailable***).

Figure 3 - 4
Power Options Define Power Buttons

Configuring the Power Buttons

The power/sleep button (**Fn** + **F4** key combo) and closed lid may be set to send the computer in to a power-saving state. Click **Choose what the power buttons do** on the left menu in **Power Options** to bring up the menu.

Resuming Operation

You can resume operation from power-saving states by pressing the power button, or in some cases pressing the sleep button (**Fn** + **F4** key combo).

Power Status	Icon ⏻/⏻ Color	To Resume
Power Off	Off	Press the Power Button
Sleep	Blinking Green	Press the Power Button Press the Sleep Button (Fn + F4 Key Combo)
Hibernate	Off (battery) Orange (AC/DC adapter)	Press the Power Button
Display Turned Off	Green	Press a Key or Move the Mouse/Touchpad

🖉

Power Button

When the computer is on, you can use the power button as a Sleep/Hibernate/Shut Down hot key button when it is pressed for less than **4 seconds** (pressing and holding the power button for longer than this will force the computer to shut down).

🖉

Closing the Lid

If you have chosen to send the computer to **Sleep** when the lid is closed, raising the lid will wake the system up.

Table 3 - 1
Resuming Operation

3

3

The **Energy Star** setting will result in maximum power saving, but with the possible loss of some performance.

Setting the mode to **Balance** will give power saving matched with performance.

Performance will give optimum computer performance but with less power conservation.

Figure 3 - 5
Control Center

Power Conservation Modes

This system supports **Energy Star** power management features that place computers (CPU, hard drive, etc.) into a low-power sleep modes after a designated period of inactivity. Adjust **Power Conservation Modes** from the **Control Center**:

1. Press the **Fn + Esc** key combination to toggle the **Control Center** on/off.
2. Click either the **Performance**, **Balanced** or **Energy Star** button.
3. Click in a blank area of the icon or press a key on the keyboard to exit **Power Conservation Mode** without making any changes.
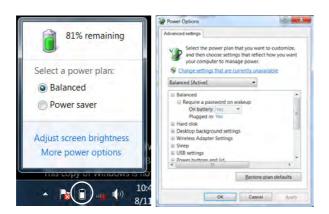
Battery Information

Follow these simple guidelines to get the best use out of your battery.

Battery Power

Your computer's battery power is dependent upon many factors, including the programs you are running, and peripheral devices attached. You can set actions to be taken (e.g. Shut down, Hibernate etc.), and set critical and low battery levels from power plan **Change plan settings > Change advanced power settings** (see *Figure 3 - 1 on page 3 - 4*).

Click the battery icon in the taskbar to see the current battery level and charge status.

> ☼
>
> **Low Battery Warning**
>
> When the battery is critically low, immediately connect the AC/DC adapter to the computer or save your work, otherwise, the unsaved data will be lost when the power is depleted.

Figure 3 - 6
Battery Icon (Taskbar) & Battery Advanced Settings

> ✎
>
> **Windows Mobility Center**
>
> The **Windows Mobility Center** control panel provides an easy point of access for information on battery status, power plans used and wireless device status etc.

Conserving Battery Power

- Use a **power plan** that conserves power (e.g **Power saver**), however note that this may have an affect on computer performance.

- Lower the brightness level of the LCD display. The system will decrease LCD brightness slightly to save power when it is not powered by the AC/DC adapter.

- Reduce the amount of time before the display is turned off.

- Close wireless, Bluetooth, modem or communication applications when they are not being used.

- Disconnect/remove any unnecessary external devices e.g. USB devices, ExpressCards etc.

Figure 3 - 7
Windows Mobility Center

3

Battery Life

Battery life may be shortened through improper maintenance. **To optimize the life and improve its performance, fully discharge and recharge the battery at least once every 30 days**.

We recommend that you do not remove the battery yourself. If you do need to remove the battery for any reason (e.g. long term storage) see *"Removing the Battery" on page 6 - 3*.

New Battery

Always completely discharge, then fully charge, a new battery (see *"Battery FAQ" on page 3 - 15* for instructions on how to do this).

Recharging the Battery with the AC/DC Adapter

The battery pack automatically recharges when the AC/DC adapter is attached and plugged into an electrical outlet. If the computer is powered on, and in use, it will take several hours to fully recharge the battery. When the computer is turned off but plugged into an electrical outlet, battery charge time is less. (Refer to *"LED Indicators" on page 1 - 7* for information on the battery charge status, and to *"Power Conservation Modes" on page 3 - 10* for more information on how to maintain and properly recharge the battery pack.)

3

☼

Caution

Danger of explosion if battery is incorrectly re-placed.

Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's in-structions.

Proper handling of the Battery Pack

- DO NOT disassemble the battery pack under any circumstances.
- DO NOT expose the battery to fire or high temperatures, it may explode.
- DO NOT connect the metal terminals (+, -) to each other.

☼

Damaged Battery Warning

Should you notice any physical defects (e.g. the battery is bent out of shape after being dropped), or any unusual smells emanating from the notebook battery, shut your computer down immediately and contact your service center. If the battery has been dropped we do not recommend using it any further, as even if the computer continues to work with a dam-aged battery in place, it may cause circuit damage, which may possibly result in fire. It is recommended that you replace your computer battery every two years.

3

Battery FAQ

How do I completely discharge the battery?

Use the computer with battery power until it shuts down due to a low battery. Don't turn off the computer even if a message indicates the battery is critically low, just let the computer use up all of the battery power and shut down on its own.

1. Save and close all files and applications.
2. **Create** a **power plan** for discharging the battery and set all the options to **Never**.
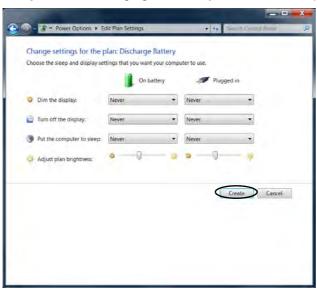
Figure 3 - 8
Power Plan Create

3

3. Click *Change plan settings* (after creating it) and click *Change plan settings > Change advanced power settings*.
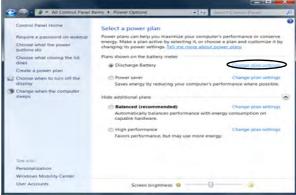
Figure 3 - 9
Change Plan Settings / Change Advanced Power Settings

4. Scroll down to **Battery** and click **+** to expand the battery options.
5. Choose the options below (click **Yes** if a warning appears):
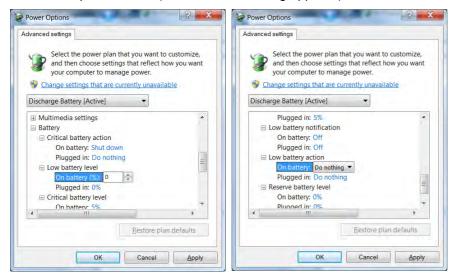
Figure 3 - 10
**Power Options
Advanced Settings -
Battery**

- Low battery levels = 0%
- Critical battery Levels = 1%
- Low battery action = Do Nothing
- Critical battery action (On battery) = Shut Down
- Critical battery action (Plugged in) = Do Nothing

3

How do I fully charge the battery?

When charging the battery, don't stop until the LED charging indicator light changes from orange to green.

How do I maintain the battery?

Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges.

SLI Multi GPU Configuration & Power

Note that due to the high power and system demands created by enabling an SLI configuration, **you should not power the system using the battery only** and you **will require identical (300W) dual power adapters, connected to a power converter box, to power the system**..
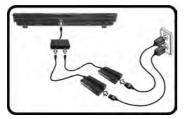
Figure 3 - 11 **- Dual Power Adapters & Converter Box**

- Only **enable SLI configuration if the system is powered by identical dual power adapters connected by means of the power converter box (factory option)**.

- If the computer is currently powered by battery only **do not enable SLI configuration**.

- If you have currently enabled SLI configuration, and the computer is powered by the dual AC/DC adapters, **do not switch to battery power only** (or go to the NVIDIA Control Panel and disable SLI configuration before switching to battery power only).

> ⚠️
>
> **SLI Configuration & Multiple Displays**
>
> Note that if SLI configuration is enabled only a **Single** display may be used as the display device.

3

Power Management

Chapter 4: Drivers & Utilities

This chapter deals with installing the drivers and utilities essential to the operation or improvement of some of the computer's subsystems. The system takes advantage of some newer hardware components for which the latest versions of most available operating systems haven't built in drivers and utilities. Thus, some of the system components won't be auto-configured with an appropriate driver or utility during operating system installation. Instead, you need to manually install some system-required drivers and utilities.

RAID & AHCI Setup

Note that setting up a RAID, or AHCI mode, needs to be done prior to installing the *Windows OS*, and therefore before installing the other drivers listed here (see *"Setting Up SATA RAID or AHCI Mode" on page 7 - 2*).

What to Install

The *Device Drivers & Utilities + User's Manual* disc contains the drivers and utilities necessary for the proper operation of the computer. *Table 4 - 1, on page 4 - 3* lists what you need to install and **it is very important that the drivers are installed in the order indicated**. The procedures for installing drivers for the **PC Camera**, **WLAN**, **Fingerprint**, **Bluetooth** and **THX TruStudio Audio** modules are provided in *"Modules" on page 7 - 1*.

> 沙
>
> **Driver Installation & Power**
>
> **When installing drivers make sure your computer is powered by the AC/DC adapter connected to a working power source**. Some drivers draw a significant amount of power during the installation procedure, and if the remaining battery capacity is not adequate this may cause the system to shut down and cause system problems (note that there is no safety issue involved here, and the battery will be rechargeable within 1 minute).

4

Driver Installation

Insert the *Device Drivers & Utilities + User's Manual* disc and click *Install Drivers* (button), or *Option Drivers* (button) to access the **Optional** driver menu.

Figure 4 - 1 **- Drivers Installer Screen 1**

1. Check the driver installation order from *Table 4 - 1, on page 4 - 3* (**the drivers must be installed in this order**) which is the same as that listed in the *Drivers Installer* menu below.
2. Click to select the driver you wish to install, (you should note down the drivers as you install them).
3. Follow the instructions for each individual driver installation procedure as listed on the following pages.

Figure 4 - 2 **- Drivers Installer Screen 2**

Driver for Windows 7 with Service Pack 1*			
Chipset	*Page 4 - 6*	*Intel Rapid Storage Technology* (for RAID & AHCI mode Hard Disk Drives)	*Page 7 - 9*
Video (VGA)	*Page 4 - 6*	*PC Camera Module*	*Page 7 - 15*
LAN	*Page 4 - 7*	*Wireless LAN Module*	*Page 7 - 23*
Card Reader	*Page 4 - 7*	*Fingerprint Reader Module*	*Page 7 - 44*
TouchPad	*Page 4 - 7*	*Bluetooth Module*	*Page 7 - 55*
Hot Key	*Page 4 - 7*	*THX TruStudio Pro Audio*	*Page 7 - 84*
USB 3.0	*Page 4 - 7*	**Note all drivers provided are for Windows 7 with Service Pack 1.*	
MEI Driver	*Page 4 - 7*		
Audio	*Page 4 - 7*		

Table 4 - 1 **- Driver Installation**

Note that you need to install both the WLAN & Bluetooth drivers for Intel and 3rd party WLAN & Bluetooth Combo modules.

4

Manual Driver Installation

Click the **Browse CD/DVD** button in the *Drivers Installer* application and browse to the executable file in the appropriate driver folder.

Windows Update

After installing all the drivers make sure you enable **Windows Update** in order to get all the latest security updates etc. (all updates will include the latest **hotfixes** from Microsoft). See for instructions.

Updating/Reinstalling Individual Drivers

If you wish to update/reinstall individual drivers it may be necessary to uninstall the original driver.To do this go to the **Control Panel** in the *Windows OS* and double-click the **Programs and Features** icon (**Programs > Uninstall a program**). Click to select the driver (if it is not listed see below) and click **Uninstall**, and then follow the on screen prompts (it may be necessary to restart the computer). Reinstall the driver as outlined in this chapter.

If the driver is not listed in the **Programs and Features** menu:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Double-click **Device Manager** (**Hardware and Sound > Device Manager**).
3. Double-click the **device** you wish to update/reinstall the driver for (you may need to click "+" to expand the selection).
4. Click **Driver** (tab) and click the **Update Driver** or **Uninstall** button and follow the on screen prompts.

User Account Control

If a **User Account Control** prompt appears as part of the driver installation procedure, click **Continue**/**Allow**, and follow the installation procedure as directed.

Windows Security Message

If you receive a *Windows* security message as part of the driver installation process. Just click *"Install this driver software anyway"* or **Install** to continue the installation procedure.

You will receive this message in cases where the driver has been released after the version of *Windows* you are currently using. All the drivers provided will have already received certification for *Windows*.

New Hardware Found

If you see the message "**New Hardware Found**" during the installation procedure (**other than when outlined in the driver install procedure**), click **Cancel** to close the window, and follow the installation procedure.

4

Driver Installation Procedure

Insert the *Device Drivers & Utilities + User's Manual* disc and click *Install Drivers* (button), or *Option Drivers* (button) to access the **Optional** driver menu.

🖊

Driver Installation General Guidelines

The driver installation procedure outlined in this Chapter (and in **Chapter 7 Options & Modules**), are accurate at the time of going to press.

Drivers are always subject to upgrade and revision so the exact procedure for certain drivers may differ slightly. As a general guide follow the default on screen instructions for each driver (e.g. **Next > Next > Finish**) unless you are an advanced user. In many cases a restart is required to install the driver.

RAID Note: Setting up a **RAID**, or **AHCI** mode, needs to be done prior to installing the *Windows OS*, and therefore before installing the other drivers listed here.

Chipset

1. Click **1.Install Chipset Driver > Yes**.
2. Click **Next > Yes > Next > Next**.
3. Click **Finish** to restart the computer.

Video (VGA)

1. Click **2.Install VGA Driver > Yes**.
2. Click **AGREE AND CONTINUE** (button) to accept the terms of the license agreement.
3. Click **Next**.
4. Click the **RESTART NOW** button to restart the computer.

After the Video (VGA) driver has been installed, and the system restarted, the OS will automatically run the "Winsat.exe" to rate the performance. Allow time for this process to finish and do not restart during this process (if you have restarted the system see).

LAN

1. Click **3.Install LAN Driver > Yes**.
2. Click **Install Drivers and Software** (button).
3. Click **Next**.
4. Click the button to accept the license agreement and click **Next**.
5. Click **Next > Install**.
6. Click **Finish**.

Card Reader

1. Click **4.Install Cardreader Driver > Yes**.
2. Click **Install.**
3. Click **Finish** to complete the installation.

TouchPad

1. Click **5.Install Touchpad Driver > Yes**.
2. Click **Next**.
3. Click the button to accept the license, and then click **Next**.
4. Click **Finish > Restart Now** to restart the computer.

Hot Key

1. Click **6.Install Hotkey AP > Yes**.
2. Click **Next > Next**.
3. Click **Finish > Finish** to restart your computer.

USB 3.0

1. Click **7.Install USB 3.0 Driver > Yes**.
2. Click **Next**.
3. Click the button to accept the license and then click **Next**.
4. Click **Install > Finish**.

MEI Driver

1. Click **8.Install MEI Driver > Yes**.
2. Click **Next > Yes > Next > Next**.
3. Click **Finish**.

Audio

1. Click **9. Install Audio Driver > Yes**.
2. Click **Next**.
3. Click **Finish** to restart the computer.

Drivers & Utilities

After installing the audio driver the system will not re-turn to the **Drivers Installer** screen. To install any of the optional drivers, eject the *Device Drivers & Utilities + User's Manual* disc and then reinsert it (or double-click the disc icon in My Computer), and click **Option Drivers** (button) to access the optional driver menu.

It is recommended that you install the **THX Tru Studio Pro Audio** application (see *"THX TruStudio AP Installation" on page 7 - 84*) and **Intel Rapid Storage Technology** driver (see *"IRST Driver Installation" on page 7 - 9* - required for AHCI & RAID mode hard disks).

🖉

Windows Update

After installing all the drivers make sure you enable **Windows Update** in order to get all the latest security up-dates etc. (all updates will include the latest **hotfixes** from Microsoft).

To enable **Windows Update make sure you are con-nected to the internet**:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Check for updates** (**Security**), or double-click **Security Center** and click **Windows Update**.
3. Double-click **Check for updates (button)**.
4. The computer will now check for updates (you need to be connected to the internet).
5. Click **Install now** (button) to install the updates.

Optional Drivers

See the pages indicated for the driver installation procedures for any modules included in your purchase option.

Figure 4 - 3 **- Optional Drivers Installer Screen**

RAID Setup

See *"Setting Up SATA RAID or AHCI Mode" on page 7 - 2*.

PC Camera

See *"PC Camera Module" on page 7 - 15*.

Wireless LAN

See *"Wireless LAN Module" on page 7 - 23*.

Fingerprint Reader Module

See *"Fingerprint Reader Module" on page 7 - 44*.

Bluetooth Module

See *"Bluetooth Module" on page 7 - 55*.

Trusted Platform Module

See *"Trusted Platform Module" on page 7 - 70*.

THX TruStudio Audio AP

See *"THX TruStudio Pro Audio" on page 7 - 84*.

Drivers & Utilities

Chapter 5: BIOS Utilities

Overview

This chapter gives a brief introduction to the computer's built-in software:

Diagnostics: The **POST** (Power-On Self Test)

Configuration: The *Setup* utility
If your computer has never been set up, or you are making important changes to the system (e.g. hard disk setup), then you should review this chapter first and note the original settings found in *Setup*. Even if you are a beginner, keep a record of the settings you find and any changes you make. This information could be useful if your system ever needs servicing.

There is one general rule: *Don't make any changes unless you are sure of what you are doing*. Many of the settings are required by the system, and changing them could cause it to become unstable or worse. If you have any doubts, consult your service representative.

> 〉〈
>
> **BIOS Screens**
>
> Note that the BIOS screens pictured on these pages are intended for guidance in setting up your system's BIOS.
>
> BIOS versions are subject to constant change and revision, therefore your computer's actual screens may appear slightly different from those pictured on these pages.

5

The Power-On Self Test (POST)

If you enable the **Boot-time Diagnostic Screen** in the Setup Utility, each time you turn on the computer the system takes a few seconds to conduct a **POST**, including a quick test of the on-board RAM (memory).

As the **POST** proceeds, the computer will tell you if there is anything wrong. If there is a problem that prevents the system from booting, it will display a system summary and prompt you to run *Setup*.

If there are no problems, the *Setup* prompt will disappear and the system will load the operating system. Once that starts, you can't get into *Setup* without rebooting.

Failing the POST

Errors can be detected during the **POST**. There are two categories, "fatal" and "non-fatal".

Fatal Errors

These stop the boot process and usually indicate there is something seriously wrong with your system. Take the computer to your service representative or authorized service center as soon as possible.

Non-Fatal Errors

This kind of error still allows you to boot. You will get a message identifying the problem (make a note of this message!) followed by the prompt:

- Press <F1> to resume
- <F2> to enter Setup

Press **F1** to see if the boot process can continue. It may work, without the correct configuration.

Press **F2** to run the **Setup** program and try to correct the problem. If you still get an error message after you change the setting, or if the "cure" seems even worse, call for help.

5

☼ BIOS Settings Warning

Incorrect settings can cause your system to malfunction. To correct mistakes, return to *Setup* and restore the *Previous Values* with <F2>, or **Optimized Defaults** with <F3>.

The Setup Utility

The **Aptio Setup Utility** tells the system how to configure itself and manage basic features and subsystems (e.g. port configuration).

Entering Setup

To enter *Setup*, turn on the computer and press **F2** during the **POST**. The prompt "*Press F2 to Enter Setup*" is usually present for a few seconds after you turn on the system. If you get a "Keyboard Error", (usually because you pressed **F2** too quickly) just press **F2** again.

If the computer is already on, reboot using the **Ctrl** + **Alt** + **Delete** combination and then hold down **F2** when prompted. The *Setup* main menu will appear.

Setup Screens

The following pages contain additional advice on portions of the *Setup*. Along the top of the screen is a menu bar with menu headings. When you select a heading, a new screen appears. Scroll through the features listed on each screen to make changes to *Setup*.

Instructions on how to navigate each screen are in the box at the bottom right side of the screen.

```
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save Changes & Exit
ESC: Exit
```

If these tools are confusing, press **F1** to call up a **General Help** screen, and then use the arrow keys to scroll up or down the page.

The **Item Specific Help** on the upper right side of each screen explains the highlighted item and has useful messages about its options.

If you see an arrow ▶ next to an item, press **Enter** to go to a sub-menu on that subject. The sub-menu screen that appears has a similar layout, but the **Enter** key may execute a command.

🖉

Setup Menus

The **Setup** menus shown in this section are for **reference** only. Your computer's menus will indicate the configuration appropriate for your model and options.

Figure 5 - 1
Navigation Menu

5

Main Menu

Figure 5 - 2
Main Menu

5

```
          Aptio Setup Utility – Copyright (C) 2011 American Megatrends Inc.
   Main  Advanced  Security  Boot  Save & Exit

   System Date                    [Wed 11/30/2011]        Set the Date. Use Tab to
   System Time                    [09:56:26]              switch between Data elements.

 ▶ SATA Port 0 TOSHIBA MK3259 (320.0GB)
 ▶ SATA Port 1 FUJITSU MHW208 (80.0GB)
 ▶ SATA Port 2 Not Present
 ▶ SATA Port 3 Not Present
 ▶ SATA Port 4 SlimtypeBD E ATAPI
 ▶ SATA Port 5 Not Present

   System Memory:                 640 KB
   Extended Memory:               4096 MB (DDR3)

   MB Series:                     **********           →←:Select Screen
   BIOS Revision:                 **********           ↑↓:Select Item
   KBC/EC firmware Revision:      **********           Enter: Select
                                                       +/-: Change Opt.
   VGA Card:                      **********           F1: General Help
   VBIOS Revision:                **********           F3: Optimized Defaults
   VBIOS Build Card:              **********           F4: Save Changes & Exit
                                                       ESC: Exit




          Version ******** Copyright (C) 2011 American Megatrends. Inc.
```

System Time & Date (Main Menu)
The hour setting uses the 24-hour system (i.e., ØØ = midnight; 13 = 1 pm). If you
can change the date and time settings in your operating system, you will also change
these settings. Some applications may also alter data files to reflect these changes.

SATA Port # (Main Menu)
Pressing **Enter** opens the sub-menu to show the configuration of a optical Device/
HDD on the computer's SATA ports.

System/Extended Memory (Main Menu)
This item contains information on the system memory, and is not user configurable.
The system will auto detect the amount of memory installed.

BIOS Revision/ KBC/EC firmware Revision / VGA Card etc. (Main Menu)
This item contains information on the BIOS version and video card etc., and is not
user configurable.

5

Advanced Menu

Figure 5 - 3
Advanced Menu

5

```
            Aptio Setup Utility — Copyright (C) 2011 American Megatrends Inc.
    Main  Advanced  Security  Boot  Save & Exit

 ▶ Advanced Chipset Control                              Advanced Chipset Control
   SATA Mode                     [AHCI Mode]
   Boot Logo                     [Enabled]
   Power On Boot Beep            [Disabled]
   Battery Low Alarm Beep:       [Disabled]
   Launch PXE OpROM              [Disabled]




                                                       →←:Select Screen
                                                       ↑↓:Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F3: Optimized Defaults
                                                       F4: Save Changes & Exit
                                                       ESC: Exit




            Version ******** Copyright (C) 2011 American Megatrends. Inc.
```

Advanced Chipset Control (Advanced Menu)
The sub-menu here allows you to adjust the **Bluetooth Power Setting**.

Bluetooth Power Setting (Advanced Menu > Advanced Chipset Control)
You can adjust the Bluetooth module power setting to your preference. The default setting (**Disabled**) will see the Bluetooth module powered off when the system is started up or restarted. Enabling the power setting will have the module retain the last power status (on or off) before any restart or shut down.

SATA Mode (Advanced Menu)
You can configure SATA (Serial ATA) control to operate in either **AHCI** (Advanced Host Controller Interface) or **RAID** (Redundant Array of Independent Disks) modes from this menu. The **SATA mode** should be set **BEFORE installing an operating system**, and after you have backed up all necessary files and data (see sidebar). See *"Setting Up SATA RAID Mode" on page 7 - 2* for details if you are configuring you hard disks in a **RAID**.

Power On Boot Beep (Advanced Menu)
Use this menu item to enable/disable the beep as the computer starts up.

Battery Low Alarm Beep (Advanced Menu)
Use this menu item to enable/disable the battery low alarm beep.

Launch PXE OpROM (Advanced Menu)
Use this menu item to enable/disable the Boot option for legacy network devices. You may need to enable this item if you need to boot from a network system (consult your system administrator for details).

> 泠
> **SATA Mode Selection**
>
> Set the SATA mode **BEFORE** installing your *Windows 7* operating system. **Do not change the mode** unless you intend to reinstall your operating system, and make sure you back up all necessary files and data before doing so.

5

Security Menu

Security Menu

The changes you make here affect the access to the **Setup** utility itself, and also access to your machine as it boots up after you turn it on. These settings do not affect your machine or network passwords which will be set in your software OS.

```
                Aptio Setup Utility — Copyright (C) 2011 American Megatrends Inc.
    Main  Advanced  Security  Boot  Save & Exit

                                                     Setup Supervisor Password
      Set Supervisor Password

    ▶ Trusted Computing



                                                     →←: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F3: Optimized Defaults
                                                     F4: Save Changes & Exit
                                                     ESC: Exit


                Version ******** Copyright (C) 2011 American Megatrends. Inc.
```

Set Supervisor Password (Security Menu)
You can set a password for access to the **Aptio Setup Utility**. This will not affect access to the computer OS (only the **Aptio Setup Utility**).

Note: To clear existing passwords press **Enter** and type the existing password, then press **Enter** for the new password (without typing any password entry) and **Enter** again to confirm the password clearance.

Set User Password (Security Menu)
You can set a password for user mode access to the **Aptio Setup Utility**. This will not affect access to the computer OS, (only the *Setup* utility) unless you choose to set a *Password on Boot* (see below). Many menu items in the **Aptio Setup Utility** cannot be modified in user mode. You can only set the user password after you have set the supervisor password.

Password on boot (Security Menu)
Specify whether or not a password should be entered to boot the computer (**you may only set a password on boot if a supervisor password is enabled**). If "*Enabled*" is selected, only users who enter a correct password can boot the system (**see the warning in the sidebar**). The default setting is "*Disabled*".

Note: To clear existing passwords press **Enter** and type the existing password, then press **Enter** for the new password (without typing any password entry) and **Enter** again to confirm the password clearance.

Password Warning

If you set a boot password (Password on boot is "Enabled"), **NEVER** forget your password.

The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.

5

Trusted Computing (Security Menu)

This sub-menu will allow you to enable/disable Trusted Platform Module (TPM) support, and to configure the TPM State. Select **Trusted Computing** and press Enter to access the sub-menu. Press Enter to access the **TPM Support** menu and select **Enable** to display the full TPM configuration menu (see *"Trusted Platform Module" on page 7 - 96* for details).

Figure 5 - 5
TPM Support

5

TPM State (Security Menu > TPM Support Enabled)
Select **TPM State**, press Enter and select **Enable** to change the TPM state to enabled. You will then need to press **F4** to save the changes and restart the computer.

```
          Aptio Setup Utility - Copyright (C) 2011 American Megatrends Inc.
           Security

   Configuration                                        Enables or Disables BIOS
        TPM SUPPORT              [Enable]                support for security device.
        TPM State               [Enabled]               O.S. will not show Security
   Pending operation            [None]                  Device. TCG EFI protocol and
                                                        INT1A interface will not be
                                                        available.
   Current Status Information
        TPM Enabled Status:     [Enabled]
        TPM Active Status:      [Activated]
        TPM Owner Status:       [UnOwned}


                                                        →←:Select Screen
                                                        ↑↓:Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Optimized Defaults
                                                        F4: Save Changes & Exit
                                                        ESC: Exit



          Version ******** Copyright (C) 2011 American Megatrends. Inc.
```

Figure 5 - 6
TPM State (Enabled)
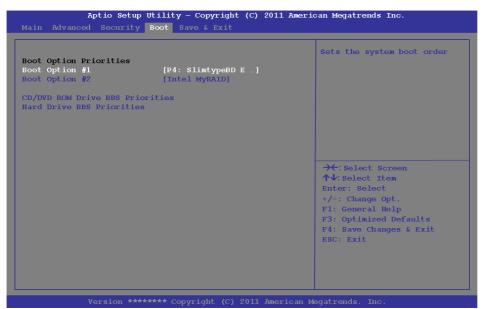
5

As the computer restarts press **F2** to enter the BIOS again and go to the **TPM Configuration menu**.

Pending TPM operation (Security Menu > TPM Support & TPM State Enabled)
Select **Pending TPM operation**, press Enter and select the option you require (if you are initializing TPM you should select **Enable Take Ownership**). You will then need to press **F4** to save the changes and restart the computer. You can now install the TPM driver (see *"Trusted Platform Module (TPM) Driver Installation" on page 7 - 73*) and then initialize the TPM.

Figure 5 - 7
Pending TPM operation (Enable Take Ownership)

Boot Menu

```
          Aptio Setup Utility — Copyright (C) 2011 American Megatrends Inc.
    Main  Advanced  Security  Boot  Save & Exit


      Boot Option Priorities                        Sets the system boot order
      Boot Option #1           [P4: SlimtypeBD E …]
      Boot Option #2           [Intel MyRAID]

      CD/DVD ROM Drive BBS Priorities
      Hard Drive BBS Priorities


                                                    →←:Select Screen
                                                    ↑↓:Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F3: Optimized Defaults
                                                    F4: Save Changes & Exit
                                                    ESC: Exit



           Version ******** Copyright (C) 2011 American Megatrends. Inc.
```

Figure 5 - 8
Boot Menu

🔔

BIOS Screens

Note that the BIOS screens pictured on these pages are intended for guidance in setting up your system's BIOS.

BIOS versions are subject to constant change and revision, therefore your computer's actual screens may appear slightly different from those pictured on these pages.

When you turn the computer on it will look for an operating system (e.g. *Windows 7*) from the devices listed in this menu, and **in this priority order**. If it cannot find the operating system on that device, it will try to load it from the next device in the order specified in the **Boot Option Priorities**. Item specific help on the right is available to help you move devices up and down the order.

Boot Option Priorities (Boot Menu)
Use the arrow keys to move up and down the menu, and go to either **CD/DVD ROM Drive BBS Priorities** or **Hard Drive BBS Priorities** and use the **F5** and **F6 keys** to move the device's boot priority up and down the list (the selected device will be highlighted in white).

5

Save & Exit Menu

```
            Aptio Setup Utility - Copyright (C) 2011 American Megatrends Inc.
    Main  Advanced  Security  Boot  Save & Exit

        Save Changes and Reset                          Reset the system after saving
        Exit Discarding Changes                         the changes.
        Load Setup Defaults
        Discard Changes
        Save Changed


        Boot Override
        P4: Slimtype DVD A DS8A8SH
        Intel MyRAID
                                                        →←: Select Screen
                                                        ↑↓: Select Item
        Launch EFI Shell from filesystem device         Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Optimized Defaults
                                                        F4: Save Changes & Exit
                                                        ESC: Exit




            Version ******** Copyright (C) 2011 American Megatrends. Inc.
```

Figure 5 - 9
Save & Exit Menu

5

Choosing to *Discard Changes*, or *Exit Discarding Changes*, will wipe out any changes you have made to the *Setup*. You can also choose to restore the original *Setup* defaults that will return the *Setup* to its original state, and erase any previous changes you have made in a previous session.

Chapter 6: Upgrading The Computer

Overview

This chapter contains information on upgrading the computer. Follow the steps outlined to make the desired upgrades. If you have any trouble or problems you can contact your service representative for further help. Before you begin you will need:

- A small crosshead or Phillips screwdriver
- A small regular slotted (flathead) screwdriver
- An antistatic wrist strap

Before working with the internal components you will need to wear an antistatic wrist strap to ground yourself because static electricity may damage the components.

The chapter includes:

- Removing the Battery
- Upgrading the Optical (CD/DVD) Device
- Upgrading the Hard Disk Drive(s)
- Upgrading the System Memory (RAM)
- Upgrading the Video Card

Please make sure that you review each procedure before you perform it.

☼

Warranty Warning

Please check with your service representative before undertaking any upgrade procedures to find out if this will VOID your warranty.

6

☼ Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

When Not to Upgrade

These procedures involve opening the system's case, adding and sometimes replacing parts. You should **not** perform any of these upgrades if:

- Your system is still under warranty or a service contract
- You don't have all the necessary equipment
- You're not in the correct environment
- You doubt your abilities

Under any of these conditions, contact your service representative to purchase or replace the component(s).

☼ Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before turning the computer on.

Upgrading the Processor

If you want to upgrade your computer by replacing the existing processor with a faster/new one you will need to contact your customer service representative. We recommend that you do not do this yourself, since if it is done incorrectly you may damage the processor or mainboard.
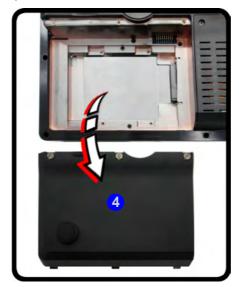
Removing the Battery

If you are confident in undertaking upgrade procedures yourself, for safety reasons it is best to remove the battery. **Before removing the battery disconnect the AC/DC adapter from the computer first**.

1. Turn the computer off, remove the AC/DC adapter and turn it over.
2. Loosen screws **1** - **3** and carefully lift the battery **4** up.
3. Remove the battery from the battery bay.

> 兆
>
> **Warranty Warning**
>
> Please check with your service representative before undertaking any upgrade procedures to find out if this will VOID your warranty.

6

Figure 6 - 1
Battery Removal

Upgrading the Optical (CD/DVD) Device

1. Locate the hard disk bay cover and remove screws **1** & **2**.
2. Remove the hard disk bay cover **3**.
3. Remove the screw at point **4**, and use a screwdriver to carefully push out the optical device at point **5**.
4. Reverse the process to install any new optical device.

6

Figure 6 - 2
**Removing the CD/
DVD Device**

Upgrading the Hard Disk Drive(s)

The hard disk drive(s) can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm (h) (see *"Storage" on page D - 3*). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in *"Drivers & Utilities" on page 4 - 1*), when setting up a new hard disk.

> 泠
>
> **HDD System Warning**
>
> New HDD's are blank. Before you begin make sure: You have backed up any data you want to keep from your old HDD.
> You have all the CD-ROMs and FDDs required to install your operating system and programs.
> If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

6

Upgrading The Computer

6

Figure 6 - 3
**Primary HDD Bay
Cover Screws &
Cover Removal**

Removing the Hard Disk(s) from the Primary HDD Bay

1. Turn the computer off, remove the AC/DC adapter, turn it over and remove the battery.
2. Locate the hard disk bay cover and remove screws ❶ & ❷.
3. Remove the hard disk bay cover ❸.

4. Remove screws **4** - **7** from the hard disk assembly.
5. Carefully pull up the tab to disconnect the hard disk cable **8**.
6. Carefully (the HDD case edges may be sharp) apply pressure using two fingers at points **9** & **10**.
7. Lift the assembly out of the bay **11** and separate the hard disk board from the case by pulling on the tab **12**.
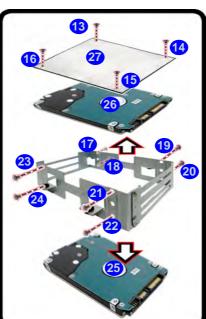

Figure 6 - 4
Bay Cover Removal & Hard Disk Assembly Screws

6

8. Remove screws **13** - **24** (depending on how many hard disks you have installed in the assembly).
9. Separate the hard disk(s) **25** & **26** from the case and mylar insulation cover **27**.
10. Reverse the process to install any new disk(s) and do not forget to install the insulation plate (onto the upper hard disk), screws, cables and covers (pay careful attention to the orientation of the hard disks in the case).
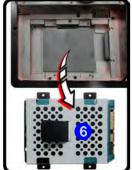
6

Figure 6 - 5
Primary Hard Disk(s) Removal

☼ HDD Case Slots

Note that the hard disk case has 3 available slots for hard disks, however **only the top and bottom slots of the case should be used.**

The third hard disk is located in the **secondary hard disk bay** located under the battery compartment (see over).

Removing the Hard Disk from the Secondary HDD Bay

1. Remove the battery (the Secondary hard disk bay is located under the battery).
2. Remove screws **1** - **4** from the hard disk assembly.
3. Grip the tab and slide the hard disk assembly in the direction of the arrow **5**.
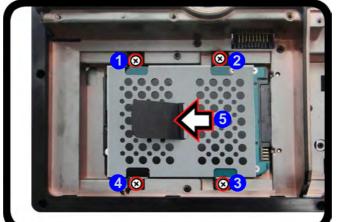4. Lift the hard disk assembly **6** out of the compartment.

Figure 6 - 6
**Secondary HDD
Assembly Removal**

6

5. Remove the screws **7** - **10** to release the hard disk from the case **11**.
6. Reverse the process to install any new hard disk(s).
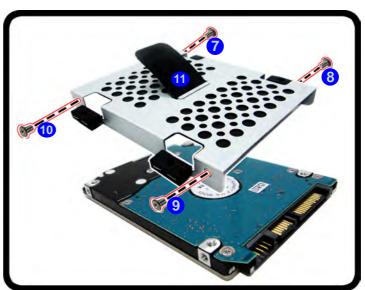
Figure 6 - 7
Secondary HDD
Case Removal

6

Upgrading the System Memory (RAM)

The computer has **four** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDR III (DDR3)** type memory modules (see *"Memory" on page D - 2*). The total memory size is automatically detected by the POST routine once you turn on your computer.

Removing the Primary System Memory (3 memory sockets)

1. Turn **off** the computer, and turn it over and remove the battery.
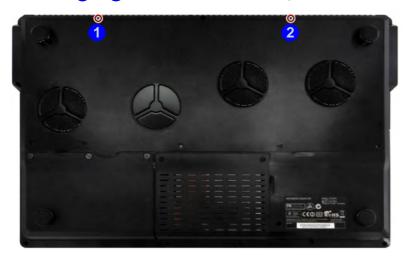2. Remove screws **1** & **2** from the bottom of the computer.

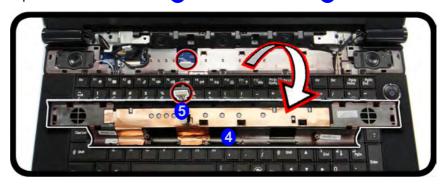*Figure 6 - 8*
Bottom Cover Screws

3. Turn the computer over, open the Lid/LCD, and carefully (a cable is connected to the underside of the LED cover module) unsnap up the LED cover module from point ❸ on the right.

4. Lift up the LED cover module ❹ and disconnect cable ❺.

5. Remove screws **6** - **10** from the keyboard.
6. Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable or keyboard LED cable.

Figure 6 - 11
Keyboard Screws

6

7. Disconnect the keyboard ribbon cable **11** from the locking collar socket **12**, and the keyboard LED cable **13** from its locking collar socket **14**.
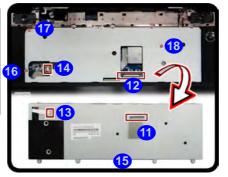8. Remove the keyboard **15**, and screws **16** - **18** from the keyboard shielding plate.

Figure 6 - 12
Disconnect the Keyboard

9. Remove the keyboard shielding plate **19**.

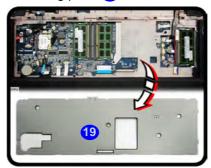*Figure 6 - 13*
Keyboard Shielding Plate Removal

6

<div style="border:2px solid red">

🔔

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

</div>

Figure 6 - 14
RAM Module Release

10. Gently pull the two release latches (**20** & **21**) on the sides of the memory socket in the direction indicated below.

11. The RAM module **22** will pop-up, and you can remove it.

⚠ Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

Figure 6 - 15
RAM Module Removal

12. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory socket.
13. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the socket as it will go. DO NOT FORCE the module; it should fit without much pressure.
14. Press the module in and down towards the mainboard until the socket levers click into place to secure the module.

15. Replace the screws and shielding plate.
16. Replace the keyboard and make sure you reconnect the keyboard cable.
17. When reconnecting the keyboard LED cable **23**, twist the cable slightly so that the gold colored contact is facing upwards to fit inside the connector. Make sure you tuck the cable into the recess in the shield plate to avoid trapping it between the keyboard and the shielding plate.
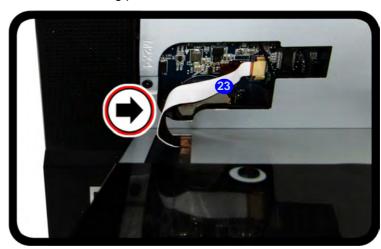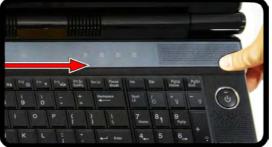
Figure 6 - 16
Reconnect the Keyboard LED Cable

18. Reconnect the LED Module cable (see *Figure 6 - 10*).
19. Snap the LED cover module down at the top of the module at points **24** & **25**.
20. Push the LED cover module down on the left side at point **26**, and then slide the module to the right (as illustrated) and snap down to secure it in place.
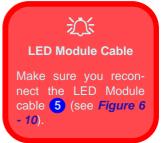

Figure 6 - 17
**LED Cover Module
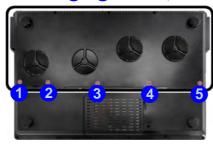Slide to the Right &
Snap Down**

6

21. Replace the screws on the bottom of the computer (see *Figure 6 - 8*).
22. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

⚠

LED Module Cable

Make sure you reconnect the LED Module cable **5** (see *Figure 6 - 10*).
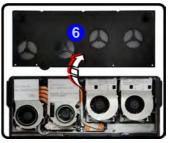
Removing the Secondary System Memory (1 memory socket)

1. Turn **off** the computer, and turn it over and remove the battery.
2. Remove screws **1** - **5** and component bay cover **6**.

Figure 6 - 18
**Component Bay
Cover Removal**

6

3. Carefully disconnect CPU fan cables **7** & **8**, and remove screws **9** - **14** in the reverse order to that indicated on the label (i.e. remove screw **9** first, and lastly remove screw **14**) and carefully pull the tab to disconnect the heat sink.

Figure 6 - 19
**CPU Heatsink Fan
Cables & Screws**

4. Carefully (it may be hot) lift up the heatsink ⑮ off the computer.

Figure 6 - 20
**CPU Heatsink
Removal**

6

5. Remove screws ⑯ - ⑲ from the fan unit, disconnect the fan cable ⑳, and lift the
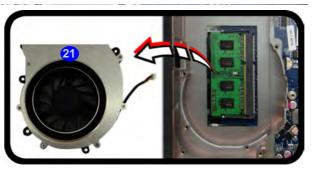   fan unit ㉑ off the computer.
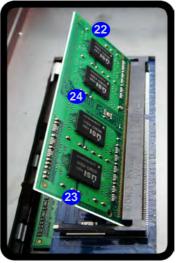

Figure 6 - 21
Fan Removal

⚠️

Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

6

Figure 6 - 22
RAM Module Removal

6. Gently pull the two release latches (**22** & **23**) on the sides of the memory socket in the direction indicated below.
7. The RAM module **24** will pop-up, and you can remove it.

8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory socket.
9. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the socket as it will go. DO NOT FORCE the module; it should fit without much pressure.
10. Press the module in and down towards the mainboard until the socket levers click into place to secure the module.

11. Replace the fan unit above the RAM module slot and replace screws **25** - **28** reconnect the cable **29**.
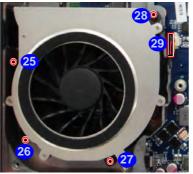
Figure 6 - 23
**Fan Unit Screws &
Cable**

12. Insert the heatsink **30** (make sure not to trap or catch the plastic VGA heat sink **31** tab under the CPU heat sink when inserting it).
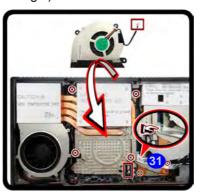
Figure 6 - 24
Heatsink Insertion

13. Tighten the CPU heat sink screws **31** - **36** in the order indicated on the label (i.e. remove screw **31** first, and lastly remove screw **36**).
14. Replace the component bay cover and screws.
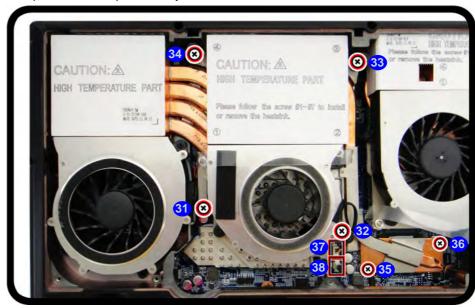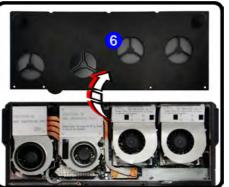
Figure 6 - 25
Heatsink Screws & Cables

Upgrading the Video Card

If you intend to upgrade or add another video card follow the procedures outlined here. However please check with your service representative first to make sure your computer can support more than one video card, and that you are not going to void your warranty. Pay careful attention to the alignment of any video card into the slot on the mainboard.

1. Turn **off** the computer, and turn it over and remove the battery.
2. Locate the component bay cover and remove screws ① - ⑤.
3. Remove the component bay cover ⑥.

> ☼
> **Warranty Warning**
>
> Please check with your service representative before undertaking any upgrade procedures to find out if this will VOID your warranty.

6

Figure 6 - 26
Component Bay Cover Removal

⚠️

Heat Sink Screws

Make sure you **remove** the heat sink screws in the order **13** - **18** (screw **13** first to screw **18** last). This order is indicated on the label (and on the heat sink itself).
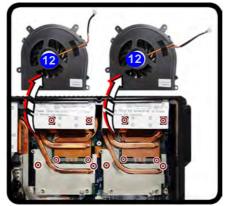
Caution

The heat sink, and video card area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.
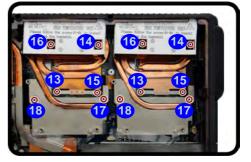
Figure 6 - 27
Fan Units & Video Card Heat Sink Screws Removal

4. The video card(s) will be visible at point **7** on the mainboard (two video cards are pictured).
5. Carefully disconnect the video card fan cable(s) **8**, and remove screws **9** - **11**.
6. Remove the video card fan(s) **12** (two video card fans are pictured here).
7. Remove screws **13** - **18** from the heat sink in **the order indicated on the heat sink unit label (and heat sink itself)**.
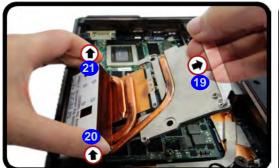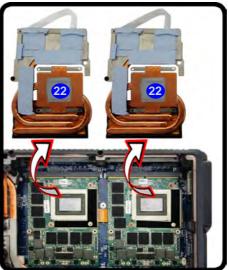
8. Carefully pull the tab **19** and lift at points **20** & **21** to disconnect the heat sink from the VGA assembly (a single unit is pictured).
9. Remove the heat sink unit(s) **22** (two heat sink units are pictured here).

> ⚠
> **Caution**
>
> The heat sink, and video card area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

Figure 6 - 28
**Video Card Heat Sink Removal**
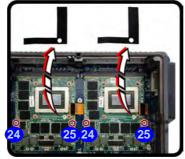
⏰

Caution
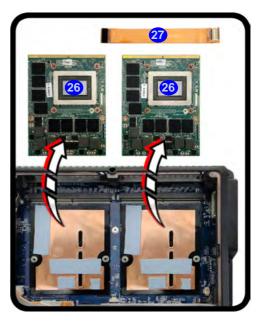
The heat sink, and video card area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

6

Figure 6 - 29
Video Card Removal

10. Carefully lift up the mylar sticker cover(s) at point **23** (two covers are pictured).
11. Remove the mylar sticker cover(s) and only **use a flat-headed screwdriver** (do not try to use any other screwdriver type here) to remove screws **24** & **25**.
12. Carefully remove the video card **26**.
13. If your system includes two video cards you will need to disconnect the cable **27** between the master and slave cards (do not forget to reconnect the cable if you are replacing two cards).
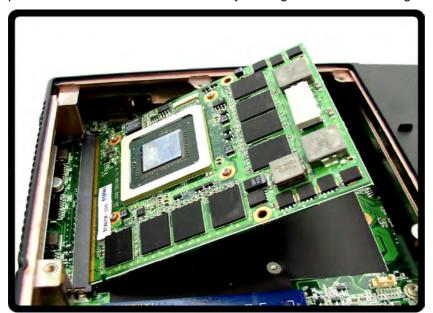
Installing a New Video Card

1. Do not forget to replace the master and slave cable if you are replacing two video cards (see *Figure 6 - 29 on page 6 - 26*).
2. Prepare to fit the video card into the slot by holding it at about a 30° angle.

> ⚠️
>
> **Contact Warning**
>
> Be careful not to touch the metal pins on the VGA card's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.

Figure 6 - 30
**Video Card
Insertion**

3. The card needs to be fully into the slot, and the video card and socket have a guide-key and pin which align to allow the card to fit securely.

4. Fit the connectors firmly into the socket, straight and evenly.
5. DO NOT attempt to push one end of the card in ahead of the other.

Figure 6 - 31
Video Card Insertion Procedure
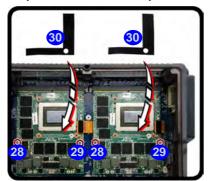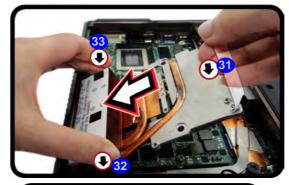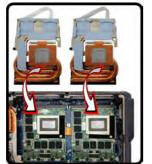
6. The card's pin alignment will allow it to only fit one way. **Make sure the module is seated as far into the socket as it will go** (none of the gold colored contact should be showing). DO NOT FORCE the card; it should fit without much pressure.

7. Secure the card with screws 28 & 29 and mylar sticker cover(s) 30.
8. Hold the heatsink by the tab 31, and at points 32 & 33, and insert it back on the card as pictured.
9. Secure the screws 34 - 39 in **the order indicated on the heat sink unit label (and heat sink itself)**.

Heat Sink Screws
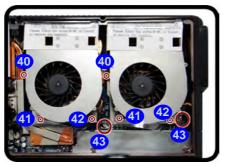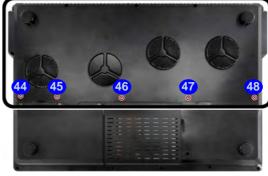
Make sure you **remove** the heat sink screws in the order 34 - 39. This order is indicated on the label (and on the heat sink itself).

Figure 6 - 32
Video Card & Heat Sink Insertion

10. Reinsert the fans and secure with screws **40** - **42** and fan cable **43**.
11. Replace the component bay cover and screws **44** - **48**.

Figure 6 - 33
**Fan Screws &
Cables and
Component Bay
Cover Screws**

🔔

SLI Configuration & Power

This computer features an **NVIDIA Scalable Link Interface (SLI)** that improves graphic quality and performance by combining dual NVIDIA GPUs (two video cards are required) in a single system. Note that due to the **high power and system demands** created by enabling an SLI configuration, **you should not power the system using the battery only** and you will require identical **dual power adapters, connected to a power converter box**, to power the system (see *"SLI Multi GPU Configuration & Power" on page C - 15*).

Chapter 7: Modules

Overview

This chapter contains information on the various modules (some of which are **op-tional**) which may come with your computer, depending on the configuration purchased. If you are unsure please contact your service representative.

The chapter includes information on the following:

• Setting Up SATA RAID or AHCI Mode
• PC Camera Module
• Wireless LAN Module
• Security Modules (Fingerprint & TPM)
• Fingerprint Reader Module
• Bluetooth Module
• Trusted Platform Module
• THX TruStudio Pro Audio
• IRST Driver

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>
> **RAID Hard Disks**
>
> All hard disks in a RAID should be identical (the same size and brand) in order to prevent unexpected system behavior.
>
> **SATA Mode Selection**
>
> The SATA mode selection should be made **before installing your operating system**.
>
> **DO NOT change your selected SATA mode** unless you intend to reinstall your operating system. Make sure you have backed up all your data before doing so.

Setting Up SATA RAID or AHCI Mode

AHCI Mode

Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced serial ATA features such as Native Command Queuing (for maximum hard disk efficiency and performance). AHCI mode can be supported by one or two hard disks. Make sure you install the **Intel® Rapid Storage Technology** application if you have set up your hard disk(s) in **AHCI** mode (see *"Intel Rapid Storage Technology" on page 7 - 9*)

RAID

To configure your RAID (Redundant Array of Independent Disks) system in Striping (RAID 0) or Mirroring (RAID 1) modes (see *Table 7 - 1, on page 7 - 3*) you will require **at least two identical** (see sidebar) hard disks; to configure your system in Parity Across Disks (RAID 5) mode you will require **three hard disks** installed.

Intel® Rapid Storage Technology Application

Make sure you install the **Intel® Rapid Storage Technology** application if you have set up your hard disk(s) in **RAID** mode (see *"Intel Rapid Storage Technology" on page 7 - 9*).

RAID Level	Description
RAID 0	Two Identical drives reading and writing data in parallel to **increase performance**. RAID 0 implements a striped disk array and the data is broken into blocks and each block is written to a separate disk drive.
RAID 1	Two Identical drives in a mirrored configuration used to **protect data**. Should a drive that is part of a mirrored array fail, the mirrored drive (which contains identical data) will handle all the data. When a new replacement drive is installed, data to the new drive is rebuilt from the mirrored drive to restore fault tolerance.
RAID 5	Identical drives (at least **three** drives must be used) in a parity across disks configuration are used to **protect data** and **increase performance**. A RAID 5 array can withstand a single disk failure without losing access to data.

Table 7 - 1
RAID Levels

🖉

Array Types

A **Mirrored Array** (**RAID 1**) provides full data protection, as data can simply be copied from a healthy disk to a replacement for any failed disk.

A **Striped Array** (**RAID 0**) is **NOT** fault-tolerant. The failure of one drive will result in the loss of all data in the array. It is designed to increase disk performance by spreading the I/O load across the channels and drives.

Prepare the following before setting up your serial ATA hard disks in **RAID** mode (to configure **AHCI** mode you do not need to prepare any extra hard disks but will need to install the **Intel® Rapid Storage Technology** application):

1. The *Microsoft Windows 7 OS DVD*.
2. A hard disk installed in the Primary HDD bay.
   AND
   For RAID levels 0/1: A **second** (identical) hard disk installed in the Primary HDD bay.
   For RAID level 5: A **third** (identical) hard disk installed in the Secondary HDD bay.
3. The *Device Drivers & Utilities + User's Manual* disc.
4. A USB Flash drive or external USB hard disk drive with the RAID folder from the *Device Drivers & Utilities + User's Manual* copied on to it.

7

SATA RAID Setup Procedure (BIOS)

1. Start-up your notebook computer and press <**F2**> to enter the **BIOS**.
2. Go to the **Advanced** menu, select "**SATA Mode**" and press Enter (see page *5 - 9*).

*   Select "**RAID Mode**".

3. Go to the **Boot** menu.
4. Set the *DVD-ROM Drive* (make sure the *Microsoft Windows 7 OS DVD* is inserted) as the first device in the boot order from the **Boot** menu (see *"Boot Menu" on page 5 - 15*).
5. Select **Save Changes and Reset** from the **Exit** menu (or press **F4** and Enter) and press **Enter** to exit the BIOS and reboot the computer.
6. See the instructions in *"RAID Setup (Intel Matrix)" on page 7 - 5*.

7

RAID Setup (Intel Matrix)

1. As the computer starts up press **Ctrl + i** to enter RAID configuration menu.
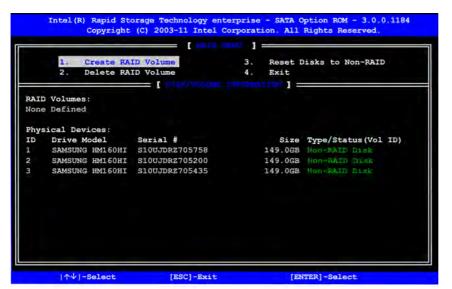
Figure 7 - 1
Intel(R) Rapid Storage Technology Option ROM

2. Select **1.Create RAID Volume** and press Enter.
3. Type the **RAID volume name** and then press Tab or Enter to advance to the next field.
4. Specify (use the up and down arrow keys) the **RAID level** (**RAID 0 (Stripe), RAID 1 (Mirror) or RAID 5 (Parity)** - see *Table 7 - 1, on page 7 - 3*) and then press Tab or Enter to advance to the next field.

Setting Up SATA RAID or AHCI Mode 7 - 5

5. Press Enter and the system will select the physical disks to use.
6. Press Enter and select (if applicable) the Strip Size (best set to default).
7. Press Enter and select the Capacity size (best set to default).
8. Press Enter to select **Create Volume**.
9. Press Enter to create the volume, and confirm the selection by pressing **Y**.
10. This will now return to the main menu.
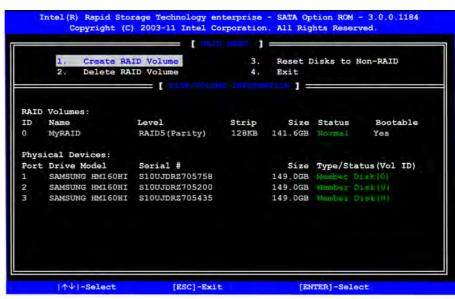
Figure 7 - 2
RAID Created

11. Select **4.Exit** and press Enter, then press **Y** to exit the RAID configuration menu.

12. Make sure the *Windows 7* OS DVD is in the DVD drive. and as the computer starts up it will automatically boot from the *Windows 7* OS DVD (you will be prompted to press a key to boot from the DVD).
13. Press **Enter** to continue installing the operating system as normal (see your *Windows* documentation if you need help on installing the *Windows* OS).

A driver is included on the *Device Drivers & Utilities + User's Manual disc* that will need to be installed as part of the *Windows* installation procedure. However you will need to go to an operable computer and copy the driver to a USB Flash drive or external USB hard disk.

1. Go to the operable computer and insert a USB Flash drive or external USB hard disk.
2. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive of the operable computer.
3. Copy the **00IRST** folder from the location below (D: denotes your DVD drive) on the *Device Drivers & Utilities + User's Manual* disc to the USB Flash drive or external USB hard disk.

• **For Windows 7 32bit = D:\Option\00IRST\f6flpy\RSTe_f6_iaStorA_32**
• **For Windows 7 64bit = D:\Option\00IRST\f6flpy\RSTe_f6_iaStorA_64**

4. Press a key at system startup to begin installing *Windows* from your *Microsoft Windows 7* disc (make sure the DVD device is set at the top of the **Boot Sequence** in the BIOS - see).
5. Click **Install Now**.

7

6. Make sure your USB Flash drive or external USB hard disk is attached to one of the USB ports on the computer.
7. Click "**I accept the license terms**" tickbox and click **Next**.
8. Click **Custom (advanced)**.
9. Click to select **Load Driver** when the "**Where do you want to install Windows?**" screen appears.
10. Click **Browse** and browse to the location you copied the files to on your USB Flash drive or external USB hard disk (X: denotes your USB Flash drive or external USB hard disk):

- **Windows 7 32bit - X:\00IRST\f6flpy\RSTe_f6_iaStorA_32**
- **Windows 7 64bit - X:\00IRST\f6flpy\RSTe_f6_iaStorA_64**

11. Click **OK > Next** (or format the drive to your preferences).
12. Follow the on-screen instructions to install the *Windows 7* operating system.
13. Install the *Windows* drivers from the *Device Drivers & Utilities + User's Manual* disc as per *Table 4 - 1, on page 4 - 3* (make sure you install the Intel Rapid Storage Technology driver - see *"IRST Driver Installation" on page 7 - 9*).

7

Intel Rapid Storage Technology

The **Intel Rapid Storage Technology application** provides high-performance SATA and SATA RAID capabilities. Install the **Intel Rapid Storage Technology application** to support your **RAID** system or SATA drive if set up in **AHCI mode** in the BIOS (see *"SATA Mode (Advanced Menu)" on page 5 - 9*). Make sure you have installed all the drivers from the *Device Drivers & Utilities + User's Manual* disc as per *Table 4 - 1, on page 4 - 3* before installing the IRST driver.

IRST Driver Installation

1. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/ DVD drive.
2. Click **Option Drivers** (button).
3. Click **7.Install IRST Driver > Yes**.
4. Click **Next > Next > Yes > Next > Next**.
5. Click **Finish** to restart the computer (you will need to restart the system again after the computer has rebooted).

See the following pages for more information if you have set your hard disks up in a RAID configuration.

Note that after installing the IRST driver the Windows system may take up to 5 minutes at startup to load all the drivers. By default, Intel® Rapid Storage Technology is set to **Automatic** (Delayed Start). See page *8 - 16* for details on how to change this setting.

🖉

Intel® Control Center

The *Intel® Control Center* provides a central starting point to make it easier to find any Intel® programs you need to use.

Click the tickbox in the first installation screen of the setup program to install the control center.

7

Intel® Rapid Storage Technology for RAID Systems

Intel® Rapid Storage Technology application displays status information on your RAID configuration. Run the **Intel® Rapid Storage Technology enterprise** application from the **Intel** item in the **All Programs** menu.

When the **Intel® Rapid Storage Technology enterprise** application is launched the system will open the **Status** window. Here you can view the general health of the storage system. Various volume creation and management options are available depending on the system's status.
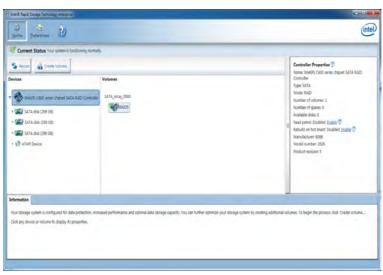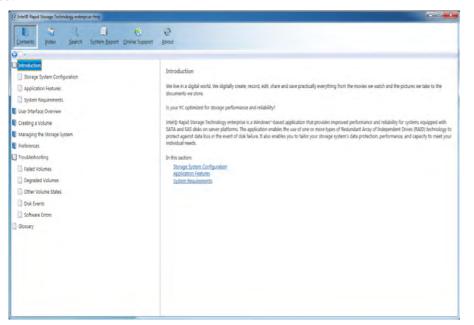
Figure 7 - 3
Intel® Rapid Storage Technology enterprise Status

Intel® Rapid Storage Technology Help

If a hard drive member of a RAID volume is reported as "**Degraded**" or "**Failed**" it may be possible to recover the volume. If the volume cannot be restored then you will need to recreate the RAID volume and restore the data from a back up. Click the **Help** menu (or press **F1**) for instructions on how to recover or recreate RAID Volumes.

🖉

Help

Click the **Help** (or press **F1**) menu button at the top of the **Intel® Rapid Storage Technology** application.

Click **Contents** to view the general list of subjects covered, click **Index** or **Search** for a more specific help topics on a particular item.

Click **More help on this page** at the bottom of any page for page specific help.

Figure 7 - 4
Intel® Rapid Storage Technology enterprise Help

RAID Volume Data Verification and Repair

The RAID volume data verification process identifies any inconsistencies or bad data on a RAID 0, RAID 1 or RAID 5 volume. The table outlines what occurs for each RAID level:

Table 7 - 2
RAID Level Verification & Repair Status

RAID Level	Verify	Verify & Repair
RAID 0	Bad blocks are identified.	N/A
RAID 5	Bad blocks are identified. Parity is recalculated and compared to the stored parity for that stripe.	Bad blocks are reassigned. If the newly calculated parity does not match the stored parity, the stored parity is overwritten with the newly calculated parity.
RAID 1	Bad blocks are identified. Data on the mirrored drive is compared to data on the source drive.	Bad blocks are reassigned. If the data on the mirrored drive does not match the data on the source drive, the data on the mirrored drive is overwritten by the data on the source.

7

Initializing, Verifying and Repairing RAID Volume Data
1. Before **verifying** the volume data you will need to **initialize** the volume.
2. Run the **Intel® Rapid Storage Technology enterprise** application from the **Intel** item in the **All Programs** menu.
3. Click the **volume** icon and click **Initialize** in **Volume Properties**.
4. Click **Yes** (button) to begin the process.
5. The completion percentage will be listed under **Information (Note this process may take some time depending on the number and size of disks)**.
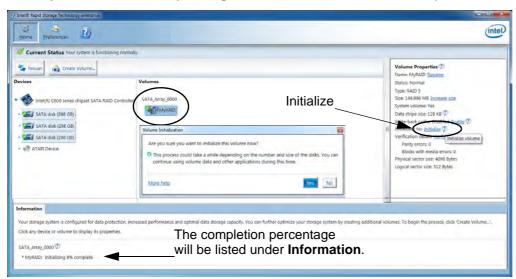
Figure 7 - 5
Intel® Rapid Storage Technology enterprise Initialize

6. After the initialization process you will need to **verify** the volume.
7. Click the **volume** icon and click **Verify**, in **Volume Properties**.
8. Click **Verify** (button) to begin the process.
9. The completion percentage will be listed under **Information**.

Figure 7 - 6
**Intel® Rapid
Storage
Technology
enterprise
Verify**

7

Verify

The completion percentage
will be listed under **Information**.

PC Camera Module

Before installing the driver, make sure the PC Camera is on. **Use the Fn** + **F10 key combination** or **Touch Sensor Instant Key** ⬚ to toggle power to the PC Camera module. When the PC Camera module is powered on the ⬚ LED will be highlighted.

Install the camera driver as indicated overleaf and install all the drivers in the order indicated in *Table 4 - 1, on page 4 - 3*. **Make sure you access the application via the desktop shortcut**.

> �
>
> **PC Camera Application and Power-Saving States**
>
> If the computer enters **Sleep** or **Hibernate** mode while running the camera application, the program will stop running, and will need to be restarted when the system resumes from the power-saving state.

> 〲
>
> **Latest PC Camera Driver Information**
>
> Check the *Device Drivers & Utilities + User's Manual disc* and any accompanying insert pages, for the latest updated information on the PC Camera driver, which may override the information provided here.
>
> **PC Camera Display**
>
> The PC Camera application software needs to be run while the *default notebook LCD* is the selected display device.
>
> After a camera picture is obtained on the default notebook LCD, you may then use the **Fn + F7** to toggle through the display modes (give the screen time to refresh).

7

PC Camera Driver Installation

1. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **1.Install Webcam Driver > Yes**.
4. Click **Finish** to restart the computer.
   OR
   Click **Next > Finish**.
5. Run the camera application program from the desktop shortcut (if the hardware is turned off **use the Fn + F10 key combination** or **Touch Sensor Instant Key** [📷] to turn it on again).

7
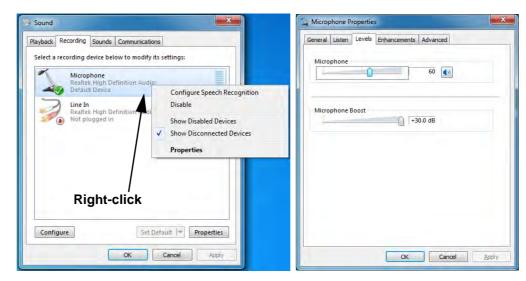
PC Camera Audio Setup
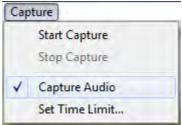
If you wish to capture video & **audio** with your camera, it is necessary to setup the audio recording options in *Windows*.

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Sound** (**Hardware and Sound**).
3. Click **Recording** (tab).
4. Right-click **Microphone** (Realtek High Definition Audio) and make sure the item is not disabled.
5. Double-click **Microphone** (or select **Properties** from the right-click menu).
6. Click **Levels** (tab), and adjust the **Microphone** and **Microphone Boost** sliders to the level required.
7. Click **OK** and close the control panels.
8. Run the camera application program from the desktop shortcut.
9. Go to the **Devices** menu heading and select **Microphone** (**Realtek....**) (it should have a tick alongside it).
10. Go to the **Capture** menu heading and select **Capture Audio** (it should have a tick alongside it).
11. To obtain the best sound recording quality enable **Noise Suppression** in the **Realtek HD Audio Manager** control panel (see *"Setup for Audio Recording" on page 2 - 11*).

Figure 7 - 7
Audio Setup for PC Camera

Right-click

Camera Application

The camera application is a video viewer for general purpose video viewing and testing, and for capturing video files to .avi format.

1. Run the camera application from the desktop shortcut (it is recommended that you **set the capture file** before the capture process - **see below**).
2. Go to the **Capture** menu heading (if you wish to capture audio check *"PC Camera Audio Setup" on page 7 - 17*) and select **Start Capture**.
3. Click **OK/Yes** (the file location will be displayed in the pop-up box) to start capturing the video, and press **Esc** to stop the capture (you can view the file using the **Windows Media Player**).

Set Capture File

Prior to capturing video files you may select the **Set Capture File...** option in the **File** menu, and set the file name and location before capture (this will help avoid accidentally overwriting files). Set the name and location then click **Open**, then set the **"Capture file size:"** and click **OK**. You can then start the capture process as on the previous page.

Note the important information in *"Reducing Video File Size" on page 7 - 20* **in order to save file space, and help prevent system problems.**

7

7

Reducing Video File Size

Note that capturing high resolution video files requires a substantial amount of disk space for each file. After recording video, check the video file size (right-click the file and select **Properties**) and the remaining free space on your hard disk (go to **My Computer**, right-click the hard disk, and select **Properties**). If necessary you can remove the recorded video file to a removable medium e.g. CD, DVD or USB Flash drive.

Note that the *Windows* system requires a minimum of **15GB** of free space on the **C: drive** system partition. In order to prevent system problems it is recommended that you save the captured video file to a location other than the **C: drive** (see *"Set Capture File" on page 7 - 19*), limit the file size of the captured video or reduce video resolution (see below).
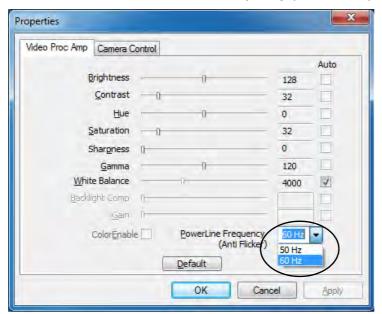
To Reduce Video Resolution Output Size:

1. Run the camera application program from the desktop shortcut.
2. Go to **Options** and scroll down to select **Video Capture Pin...**.
3. Click the **Output Size** drop box and select a lower resolution size in order to reduce the captured file size.
4. Click **OK**.

Eliminating Screen Flicker

If you find that the video screen in the camera program is flickering, you can try to adjust the setting in the **Video Capture Filter** options.

1. Run the camera application from the desktop shortcut.
2. Go to **Options** and scroll down to select **Video Capture Filter...**.
3. Click either **50Hz** or **60Hz** under **Powerline Frequency (Anti Flicker)**.

Figure 7 - 8
Video Capture Filter

Latest PC Camera Driver Information

Check the *Device Drivers & Utilities + User's Manual disc*, and any accompanying insert pages, for the latest updated information on the PC Camera driver, which may override the information provided here, including the figures pictured here.

7

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Snapshot Folder

The Snapshot folder's default location is on the desktop. Do not move this folder or an error may appear when you try to take a still picture.

If you accidentally delete or move the folder, you can create a new Snapshot folder on the desktop in order to capture the files.

7

Taking Still Pictures

The camera application allows you to take still pictures.

1. Run the camera application from the desktop shortcut.
2. Go to **Options** and select **Take Picture**.
3. The picture (in JPEG format) will be placed in the **Snapshot** folder on the desktop.

Wireless LAN Module

If you have included an **Intel®** or **3rd Party 802.11b/g/n WLAN module** in your purchase option, make sure that the Wireless LAN module is on before installing the driver.

Use the Fn + F11 key combination or **Touch Sensor Instant Key** [(ᵞ)] to toggle power to the Wireless LAN module. When the WLAN module is powered on, the [(ᵞ)] LED will be highlighted. Make sure you install the drivers in the order indicated in *Table 4 - 1, on page 4 - 3*. The operating system is the default setting for Wireless LAN control in *Windows 7*.

Note that you need to install both the WLAN & Bluetooth drivers for Intel and 3rd party WLAN & Bluetooth Combo modules.

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>
> **Wireless Device Operation Aboard Aircraft**
>
> The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.
>
> Use the **Fn + F11** key combination/Touch Sensor Key to toggle power to the WLAN module, and check the LED to see if the module is powered on or not (see *Table 1 - 5, on page 1 - 13*/ *Table 1 - 1, on page 1 - 7*).

7

Intel® Wi-Fi Link Series Driver Installation

If you see the message "**Found New Hardware**" click **Cancel** to close the window.

1. Make sure the module is powered on, then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **2.Install WLAN Driver > Yes**.
4. Click **Next > Next**.
5. Click the button to accept the license and click **Next**.
6. Click **Next > Next > Finish**.

Note: The operating system is the default setting for Wireless LAN control in *Windows* (see overleaf).

802.11b/g/n Driver Installation

1. Make sure the module is powered on, then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **2.Install WLAN Driver > Yes**.
4. Choose the language you prefer and click **Next > Next**.
5. Click **Finish** to restart the computer.

Note: The operating system is the default setting for Wireless LAN control in *Windows 7* (see overleaf).

Connecting to a Wireless Network in Windows 7

Make sure the Wireless LAN module is turned on.

1.   **Click** the taskbar wireless icon 📶, and then double-click an access point to connect to or click to **Open Network and Sharing Center** if you do not see a network you want to connect to in the taskbar menu (a list of options will appear allowing setting changes, and creating a new network).

📎

Network and Sharing Center

You can also use the **Network and Sharing Center** control panel in Windows (**Network and Internet**) to connect to any available wireless networks.

7

Figure 7 - 9
Click Taskbar Icon Menu & Network and Sharing Center

2. You may need to enter a security key for any access point to which you are trying to connect.
3. Click to select a network location (e.g. **Home, Work or Public**).
4. Click "**View or change settings in Network and Sharing Center"** to access further options for the connection.

Figure 7 - 10
Network Location Set

5. Click the taskbar icon 📶 to see any currently connected networks.
6. To disconnect from the wireless network you can click the taskbar wireless icon 📶, click the active connection and then click **Disconnect** (button).

🔆 **Security Enabled Networks**

You should try to make sure that any network you are connecting to is a secure network.

Connecting to unsecure networks may allow unauthorized access to your computer, documents, websites and files etc.

Figure 7 - 11
Click Taskbar Icon Menu - Disconnect

🖉

Intel® My WiFi Help

To get help on **Intel® My WiFi** configuration and settings, access the **Intel® My WiFi Utility** from the **Start** menu (Start > Programs/All Programs > Intel PRO-Set Wireless > Intel My WiFi Technology), or by clicking the notification area icon . Click the **Help** icon Help and select a help topic from the **Contents** menu.

Intel® My WiFi Configuration

Intel® My WiFi Technology uses your WLAN (**for Intel WLAN modules only**) module to allow you to connect up to eight other WiFi enabled devices (e.g. digital cameras, other computers, cell phones, handheld devices etc.) to your computer (similar to Bluetooth), while still connecting to the Internet through your WiFi wireless connection. Intel® My WiFi Technology offers greater range and speed than other personal area networks, and does not require an access point.

Intel® My WiFi Configuration

You can configure the My WiFi settings as follows.

1. Access the **Intel® My WiFi Utility** from the **Start** menu (**Start** > **Programs/All Programs** > **Intel PROSet Wireless > Intel My WiFi Technology**), or by double-clicking the notification area icon 🔧.
2. Click **Enable** ⟨Enable⟩ (on the first run of the program there will be no connected devices listed).
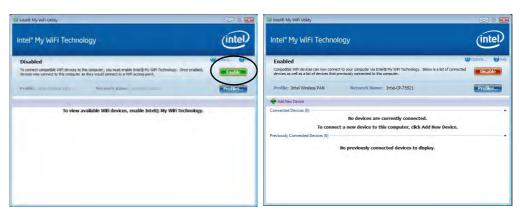
Figure 7 - 12
**Intel® My WiFi
Utility**

7

3. Click **Start** and click **Control Panel**.
4. Click **Network and Sharing Center** (**Network and Internet**).
5. Click **Change adapter settings**.

Figure 7 - 13
Network and
Sharing Center

6. Right-click **Wireless Network Connection** and select **Properties**.
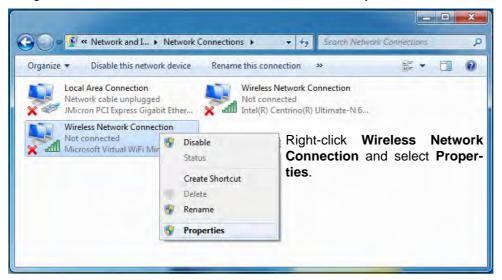
Figure 7 - 14
Network Connections

7

Right-click **Wireless Network Connection** and select **Properties**.

7. Click **Sharing (tab)** and select "**Allow other network users to connect through this computer's Internet connection**".
8. Select **Wireless Network Connection** under **Home networking connection**.
9. Click **OK**.

Click "**Allow other network users to connect through this computer's Internet connection**".

Select **Wireless Network Connection**.
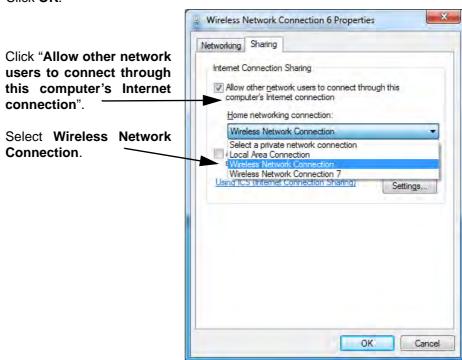
Figure 7 - 15
Wireless Network Connection Properties - Sharing

10. Access the **Intel® My WiFi Utility** from the **Start** menu (**Start** > **Programs/All Programs** > **Intel PROSet Wireless > Intel My WiFi Technology**), or by double-clicking the notification area icon .

11. Click **Profiles** .

Figure 7 - 16
Intel® My WiFi Utility - Profiles

12. Click **Profiles,** click **Intel Wireless PAN** and click **Edit** or **New (Note that all preset settings may not be editable - see sidebar)**.

Figure 7 - 17
Profiles

 🖉

Profile Settings
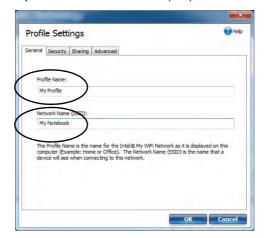
Profiles that are **preset may not be fully editable**. To edit all the profile settings, click **New** to create a new profile and adjust the settings to your preferences.

13. You can change the **Profile Name** and **Network Name** to your personal preferences in **General** (tab).

Figure 7 - 18
Intel® My WiFi Profile Settings - General

 🖉

Profile and Network Names

The **Profile Name** is the name as displayed on your computer in the **Network Connections** control panel (see *Figure 7 - 19 on page 7 - 35*).

The **Network Name (SSID)** is the name the devices see when they try to connect to your computer.

14. Click **Security** (tab).
15. Change the **Security Type** to **WEP** and the **Encryption Type** to **64bit**.
16. Enter a password (8 characters long) in the **Password** box.
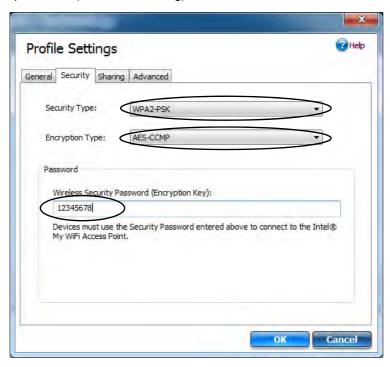
Figure 7 - 19
**Intel® My WiFi
Profile Settings -
Security**

17. Click **Sharing** (tab).
18. It is recommended that the **Filter Network Traffic** and **DHCP and DNS Server** are **Disabled**.

Figure 7 - 20
Intel® My WiFi Profile Settings - Sharing

19. Click **Advanced** (tab).
20. It is recommended that the **Default Channel** is set to **Channel 1, 6** or **11**.
21. Click **OK** to save the settings.
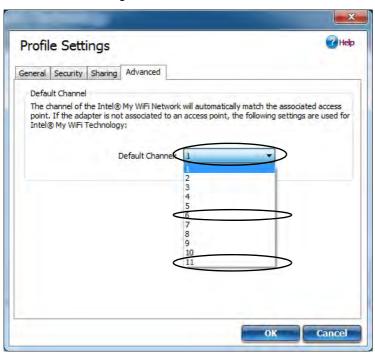
Figure 7 - 21
Intel® My WiFi Profile Settings - Advanced

7

22. Double-click **Wireless Network Connection** in **Network Connections**.
23. Click **Details** to display the **Network Connection Details**.
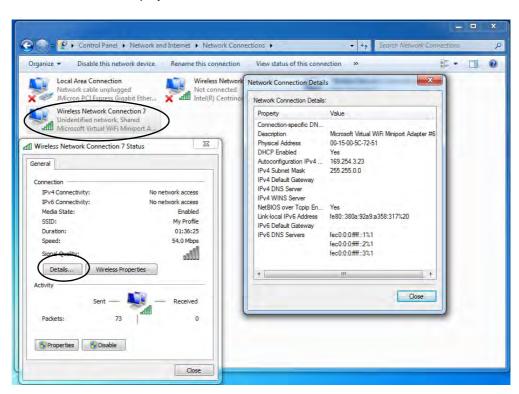
Figure 7 - 22
Wireless Network Connection Details

7

24. Access the **Intel® My WiFi Utility** from the **Start** menu (**Start** > **Programs/All Programs** > **Intel PROSet Wireless > Intel My WiFi Technology**), or by clicking the notification area icon .
25. To add a new device follow the instructions in the devices' user guide for connecting to a WiFi network.
26. Click **Add New Device** in **Intel® My WiFi Utility** to confirm the security settings detail.

Figure 7 - 23
**Intel® My WiFi
Utility
(Add New Device)**

Intel WLAN & Bluetooth Combo Module High-Speed Data Transfer Configuration

You will need to configure the following settings to enable high-speed wireless data transfer as supported by Intel Wireless LAN & Bluetooth Combo modules (note this information applies to Intel WLAN & Bluetooth Combo modules only).

1. Go the *Windows* control panel and double-click **Device Manager** (in **Hardware and Sound** under **Devices and Printers**).

Figure 7 - 24
Devices and Printers (Device Manager)

2. Click **Network adapters** to expand the sub-menu.
3. Double-click the **Intel WiFi Link ....** module.
4. Click **Advanced** (tab).
5. Click **802.11n Channel Width for band 2.4** under "**Property**:".
6. Click the pull-down menu under "**Value**:"
7. Click to select **Auto**.
8. Click **OK** and close the control panels.
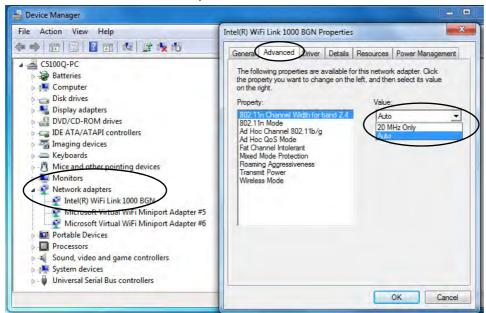
Figure 7 - 25
Intel WiFi Link Properties (Advanced)

Windows Mobility Center

The **Windows Mobility Center** control panel provides an easy point of access for information on battery status, power plans used and wireless device status etc.

To access the Windows Mobility Center:

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Double-click **Windows Mobility Center** (**Mobile PC**).
3. Click the button to **Turn wireless off/on**, or click the icon ▲ to access the network menu.

Figure 7 - 26
Windows Mobility Center

Security Modules (Fingerprint & TPM)

The encrypted channel between the **Trusted Platform Module security chip** (see *"Trusted Platform Module" on page 7 - 70*) and the **fingerprint reader** with **AuthenTec TrueSuite** software (see *"Fingerprint Reader Module" on page 7 - 44*) provides a high level of security for your computer. A further level of security and control is provided in the BIOS (see *"Security Menu" on page 5 - 10*).

The **fingerprint reader** and **AuthenTec TrueSuite** software allow you to:

• Access or Lock your computer
• Protect sensitive files
• Access frequently used websites using your fingerprint
• Fill in frequently log on information

> ☼
>
> **Password Warning**
>
> If you set passwords for any of the security modules, **NEVER** forget your password.
>
> The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.

7

Fingerprint Reader Module

The fingerprint reader module provides a high level of security for your computer. Make sure you have administrator's rights to your computer, and have a *Windows* password enabled for full security protection.

Fingerprint Reader Driver Installation

1. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/ DVD drive.
2. Click **Option Drivers**.
3. Click **3.Install FingerPrint Driver > Yes**.
4. Click **Next**.
5. Click the button to accept the license and click **Next**.
6. Click **Next > Install**.
7. Click **Finish > Yes** to restart the computer.
8. Click **Start > All Programs > AuthenTec TrueSuite**.

AuthenTec TrueSuite Application

The **AuthenTec TrueSuite** application is used in conjunction with your fingerprint reader to enroll fingerprints and manage settings etc.

User Enrollment

1. Click **Start > All Programs > AuthenTec TrueSuite**.
2. Click **Yes** when you have identified your **fingerprint sensor** (**8** Fingerprint Reader Module in *Figure 1 - 2 on page 1 - 6*).
3. Click **Yes** when you are ready to enroll your fingerprints.
4. Click on the fingerprint diagram to select any finger to enroll.
5. You will be required to enter your *Windows* password (you will be prompted to create a password if you have not already done so) at this point (click **OK** to confirm the password entry).
6. Swipe the finger until the progress bar reaches **100%** to enroll that finger.

Fingerprint Enrollment

Note that it is strongly recommended that you **enroll more than one finger in case of injury etc.**

Figure 7 - 27
Fingerprint Enrollment

7

Modules

Figure 7 - 28
AuthenTec TrueSuite

7. You will be prompted to select another finger for enrollment (it is recommended that you enroll a number of fingers - see sidebar).
8. Click the button to continue once you have enrolled a number of fingerprints.
9. Enter the required information and click the button to register your software, or click to register later.
10. Your fingerprints will now be enrolled (you may enroll any additional fingerprints at any time).

Settings

Click the **Settings** button on the menu bar to access the personalization settings for **AuthenTec TrueSuite**. Here you can choose to enable/disable Website Log On, QuickLaunch, Fast User Switching and the desktop icon. You can also select the Theme and export/import identities. Click the **Save** button to save any changes made.
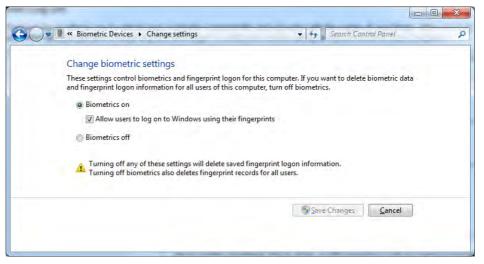
Figure 7 - 29
**AuthenTec
TrueSuite - Settings**

7

Windows Log On

Windows log on allows you to gain access to your computer by swiping your finger across the fingerprint reader sensor. Use the **Biometric Devices** control panel (in the **Hardware & Sound** category) in *Windows* to turn **Biometrics on/off** when required. Access the **Biometric Devices** control panel and select **Change biometric settings** to turn the biometrics on or off, or to allow users to log on to *Windows* using fingerprints.

Figure 7 - 30
Biometric Devices Control Panel (Windows Hardware & Sound)

When Biometrics is on, and "*Allow users to log on to Windows using their fingerprints"* is enabled, simple swipe you finger across the reader to log on to *Windows*.

Website Log On

Use a fingerprint swipe to log on to websites to help you avoid having to remember user names and passwords across multiple websites (browsers supported are Internet Explorer, Firefox and Chrome).

Registering a Website

1. Use your web browser to navigate to the website required.
2. Enter your user name and password and sign in to the website.
3. An **AuthenTec TrueStudio** dialog box will pop-up.
4. Click **Save Password** to register the website.

Figure 7 - 31
Save Password

5. The website will now be registered (and your log on and password information will be bolometrically stored) and you will be prompted to swipe a finger to log on to the website in future.

Figure 7 - 32
Log On to Website

QuickLaunch

QuickLaunch allows you to drag and drop icons (which represent websites, folders, applications and/or computer actions) to any enrolled finger and then swipe your finger to launch the icons assigned to that finger.

1. Click **Start > All Programs > AuthenTec TrueSuite**.
2. Click **Select Category** View all (button) to group icons if required.
3. Drag and drop an icon to an enrolled finger.
4. To launch the website, folder, application and/or action just swipe your finger across the sensor.
5. If you have entered the log on information for the website then a single swipe will launch the website(s), load the log on page and log on to your account.

Figure 7 - 33
QuickLaunch

Adding a Website to QuickLaunch

1. Click **Start > All Programs > AuthenTec TrueSuite**.
2. Click the **Add Website button** on the menu bar and the dialog box will be displayed.
3. Enter the website URL, name, icon and category as required.
4. Click **Save** and an icon will be associated with the selected website.
5. To **delete** an icon right-click it and select **Delete Icon** and it will no longer be associated with the finger.

Figure 7 - 34
QuickLaunch Add Website

7

Dock View

Dock View displays the website icons across the bottom of the screen. Each icon wiLl have an associated web card which displays the website information, user name and password etc. This information may be edited or deleted as required.

Figure 7 - 35
Dock View

Editing a Web Card

1. Click **Start > All Programs > AuthenTec TrueSuite**.
2. Left-click a web card to bring up the associated information.
3. You can click the reveal/hide password button to see or hide the password.
4. Make any changes required and click Save to confirm the changes.
5. To delete a web card left-click it and click the **Delete** icon.
6. Click **Print** to print and web card and the password will be shown in plain text.
7. You can **Print all web cards** from the menu bar button if required.

Figure 7 - 36
**QuickLaunch
Add Website**

Exporting and Importing Your Identity

You can export your identity to backup your information, or to move it to another computer.

Exporting Your Identity
1. Click **Start > All Programs > AuthenTec TrueSuite**.
2. Click the **Settings** button on the menu bar.
3. Click **Export My Identity**.
4. You will be required to enter and confirm a passphrase and click **Next**.
5. Browse to a location to **Save** the file.
6. Swipe a finger to confirm the export.

Importing Your Identity
1. Click **Start > All Programs > AuthenTec TrueSuite**.
2. Click the **Settings** button on the menu bar.
3. Click **Import My Identity**.
4. Browse to the location where the file is saved.
5. Select the file and click **Open**.
6. Type your passphrase and click **Next**.
7. The information will then be imported.

7

AuthenTec KeepSafe

The **KeepSafe folder** is an encrypted area assigned on your hard drive that allows you to store files and folders to be protected by fingerprint protection. The folder will appear on your desktop (if selected in the **Personalization Settings**) and in My Computer, but will not be visible to other users of your computer.

To **lock/unlock** the **KeepSafe** folder right-click it to display the context menu and select **Unlock/Lock**. You will be required to authenticate when unlocking the folder using either a fingerprint swipe or *Windows* password.

To add files to **KeepSafe** folder just open the folder and drag and drop files into the folder. You may also right-click any file to bring up the context menu and select **Add to KeepSafe** (you can select whether or not to keep or delete the original file).

7

Bluetooth Module

If your purchase option includes the **Combination Wireless LAN & V3.0 Bluetooth module** (either **Intel® Centrino Advanced-N 6230** or **3rd Party**) then install the driver as instructed.

If your purchase option includes a **standard V2.1 Bluetooth module**, then the operating system's **Bluetooth Devices** control panel is used to configure the Bluetooth settings in *Windows 7*, and therefore does not require a driver.

> 🖉
>
> **Bluetooth Data Transfer**
>
> Note that the transfer of data between the computer and a Bluetooth enabled device is supported in one direction only (simultaneous data transfer is not supported). Therefore if you are copying a file from your computer to a Bluetooth enabled device, you will not be able to copy a file from the Bluetooth enabled device to your computer until the file transfer process from the computer has been completed.

> ☼
>
> **Wireless Device Operation Aboard Aircraft**
>
> The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.
>
> Use the **Fn + F12** key combination to toggle power to the Bluetooth module, and check the LED indicator to see if the module is powered on or not (see *Table 1 - 5, on page 1 - 13*/ *Table 1 - 1, on page 1 - 7*).

7

Modules

Use the Fn + F12 key combination or **Touch Sensor Instant Key** ⎣ ⁂ ⎦ **to toggle power to the Bluetooth module**. When the Bluetooth module is powered on the ⎣ ⁂ ⎦ LED will be highlighted and the indicator ⓝ 📶 will briefly be displayed.

- For **3rd party Bluetooth V2.1 +EDR modules** see *"Standard Bluetooth Configuration in Windows 7" on page 7 - 66* (no driver is required).

- For **3rd party Bluetooth combo modules** see *"3rd Party Bluetooth Combo Driver Installation" on page 7 - 57* and *"3rd Party Bluetooth & WLAN Combo Settings" on page 7 - 58*.

- For **Intel Bluetooth combo modules** see *"Intel Bluetooth Combo Driver Installation" on page 7 - 65* and *"Standard Bluetooth Configuration in Windows 7" on page 7 - 66*.

3rd Party Bluetooth Combo Driver Installation

Note this driver is required only for the combo Bluetooth and WLAN module only.

1. **Before installing the driver make sure the Bluetooth module is powered on** (use **Fn** + **F12** key combination), then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive. If a *Found New Hardware* window appears, click **Cancel** in all windows that appear, and then proceed to install the driver as below.
2. Click **Option Drivers** (button).
3. Click **4.Install Combo BT Driver > Yes**.
4. Choose the language you prefer and click **OK**.
5. Click **Next**.
6. Click the button to accept the license and click **Next**.
7. Click **Next >** *(select if you want to create an icon to appear on the desktop)* **Next > Install**.
8. Click **Finish**.
9. The **Bluetooth** item will be installed in the **Programs/All Programs** menu.
10. See for information on Bluetooth networking.

🖉

High Speed Bluetooth Data Transfer

The **Combination Wireless LAN & V3.0 Bluetooth module** supports high speed (V3.0) data transfer. However to achieve such transfer speeds, **both devices must support high speed data transfer**.

To obtain high speed (V3.0) data transfer make sure that both the WLAN and Bluetooth modules are powered on.

Check your Bluetooth compatible device's documentation to confirm it supports high speed data transfer.

7

> ✏
>
> **Bluetooth Module & Resuming From Sleep Mode**
>
> The Bluetooth module's default state will be off after resuming from the **Sleep** power-saving state. Use the key combination (**Fn + F12**) to power on the Bluetooth module after the computer resumes from Sleep.

Figure 7 - 37
My Bluetooth Settings

3rd Party Bluetooth & WLAN Combo Settings

This information applies to the combo Bluetooth and WLAN module only.

1. Make sure the Bluetooth module is powered on.
2. Access the **My Bluetooth** application from **Bluetooth** in the **Programs/All Programs** menu.
3. Click **My Bluetooth Settings** (menu heading).

4. Click **General Settings** 🔧 to change the computer *name that other Bluetooth devices will see*, and click the tickbox to *Allow Bluetooth devices to find this computer*
5. Click **OK** to confirm the settings.
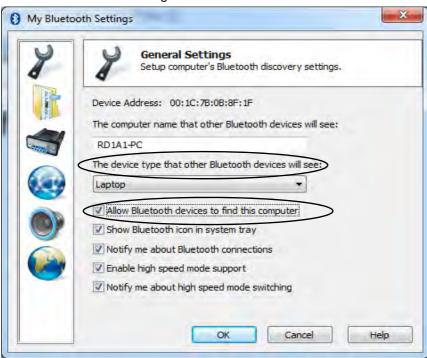
Figure 7 - 38
General Settings

6. Click **File Transfer Settings** 📁 to *Enable sharing of my files with other Bluetooth devices*.
7. Click **OK** to confirm the settings.

7
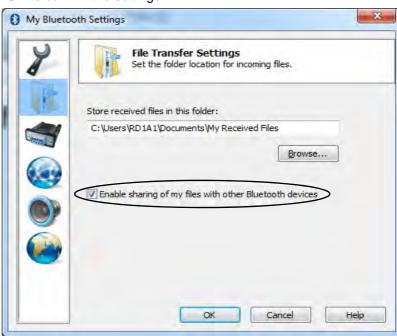
Figure 7 - 39
File Transfer Settings

3rd Party Bluetooth Networking Setup

This information applies to the combo Bluetooth and WLAN module only.

1. Make sure the Bluetooth module is powered on.
2. Access the **My Bluetooth** application from **Bluetooth** in the **Programs/All Programs** menu.
3. Click **My Bluetooth Settings** (see *Figure 7 - 37 on page 7 - 58*).

Figure 7 - 40
Network Settings

4. Click **Network Settings** (make sure the Bluetooth module is powered on.
5. Click **Enable Bluetooth Network** and click **OK**.
6. A message will appear in the taskbar notification area to confirm that the network driver has been installed.

> 🖊
>
> **Bluetooth Module & Resuming From Sleep Mode**
>
> The Bluetooth module's default state will be off after resuming from the **Sleep** power-saving state. Use the key combination (**Fn + F12**) to power on the Bluetooth module after the computer resumes from Sleep.

7

3rd Party Bluetooth & WLAN Combo Module Configuration

Setup your Bluetooth Device so the Computer Can Find it

1. Turn your Bluetooth device (e.g. PDA, mobile phone etc.) on.
2. Make the device discoverable (to do this check your device documentation).

To Turn the Bluetooth Module On

1. Press the **Fn + F12** key combination to power on the Bluetooth module.

To Add a Bluetooth Device

1. Access the **My Bluetooth** application from **Bluetooth** in the **Programs/All Programs** menu.
2. Double-click the device you want to pair with the computer (if no devices appear press **F5** or click the **Refresh** button to search for devices).

Figure 7 - 41
My Bluetooth Devices

3. You will then be presented with a menu of options to select from.

Figure 7 - 42
Bluetooth Device Options

4. Click the appropriate button to connect to the device.

5. You may need to allow the connection from your device, and you will then need to provide a passcode from the device.
6. You can then enter the passcode on the computer and click **OK** to establish the connection.

Figure 7 - 43
Bluetooth Pairing Code & Connection Established

Intel Bluetooth Combo Driver Installation

Note this driver is required only for the Intel combo Bluetooth and WLAN module only.

1. **Before installing the driver make sure the Bluetooth module is powered on** (use **Fn** + **F12** key combination), then insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive. If a *Found New Hardware* window appears, click **Cancel** in all windows that appear, and then proceed to install the driver as below.
2. Click **Option Drivers** (button).
3. Click **4.Install Combo BT Driver > Yes**.
4. Click **Next > Next**.
5. Click the button to accept the license and click **Next**.
6. Click **Next > Finish**.
7. See over for configuration instructions.

Note that, at the time of going to press **Intel® Centrino Advanced-N 6230** WLAN & Bluetooth V3.0+HS combo modules use the standard Bluetooth configuration in *Windows 7* (see *"Intel Bluetooth Combo Driver Installation" on page 7 - 65*). **Do not use** the Bluetooth & WLAN Combo settings information outlined from page *7 - 58* to page *7 - 64*. See also *"Intel® WLAN & Bluetooth V3.0+HS Combo Modules" on page 8 - 17*.

🖉

High Speed Bluetooth Data Transfer

The **Combination Wireless LAN & V3.0 Bluetooth module** supports high speed (V3.0) data transfer. However to achieve such transfer speeds, **both devices must support high speed data transfer**.

To obtain high speed (V3.0) data transfer make sure that both the WLAN and Bluetooth modules are powered on.

Check your Bluetooth compatible device's documentation to confirm it supports high speed data transfer.

7

Standard Bluetooth Configuration in Windows 7

Setup your Bluetooth Device so the Computer Can Find it

1. Turn your Bluetooth device (e.g. PDA, mobile phone etc.) on.
2. Make the device discoverable (to do this check your device documentation).

To Turn the Bluetooth Module On
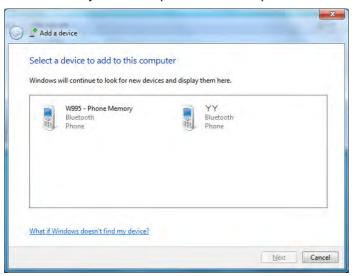
1. Press the **Fn + F12** key combination to power on the Bluetooth module.
2. A Bluetooth icon ![bt] will appear in the notification area.
3. You can then do any of the following to access the **Bluetooth Devices** control panel.

- **Double-click** the notification area icon ![bt] to access the **Bluetooth Devices** control panel.
- **Click/Right-click** the notification area icon ![bt] and choose an option from the menu.

Add a device

Right-Click Notification Area Icon ![bt]

⌖

Add a Device

Click **Start**, and click **Control Panel** and then click **Devices and Printers (Hardware and Sound)**. Click **Add a device** to search for any available Bluetooth devices.

Bluetooth Module & Resuming From Sleep Mode

The Bluetooth module's default state will be off after resuming from the **Sleep** power-saving state. Use the key combination (**Fn + F12**) to power on the Bluetooth module after the computer resumes from Sleep.

Figure 7 - 44
Bluetooth Devices & Click Icon Menu

---

7 - 66 Bluetooth Module

To Add a Bluetooth Device
1. Access the **Bluetooth Devices** control panel and click **Add a device**.
2. Double-click the device you want to pair with the computer.

3. On first connection the computer will provide you with a pairing code to be entered onto the device.

🖉

Pairing Options

If a device has been previously connected then the pairing option menu will appear when you attempt subsequent connections. You can choose to have the computer create a pairing code for you, use the device's existing pairing code or you can pair certain devices without using a code.

Figure 7 - 45
Add a Device

4. Enter the code into your Bluetooth enabled device and follow any on-screen instructions to complete the pairing.

Figure 7 - 46
Pairing Code Example

🖊

Pairing Codes

The example outlined here shows a connection to a mobile device. Other devices e.g. computers, may have a slightly different connection procedure, and may require you to confirm a pairing code is correct on both devices. Follow the on-screen instructions to complete the pairing.

7

5. *Windows* will check to see if any drivers are required to complete the pairing.
6. Follow any on-screen instructions on the computer if device drivers are required to be installed.
7. Click **Close**.

Figure 7 - 47
Pairing Complete & Bluetooth Device Enabled

To Change Settings for the Bluetooth Device
1. Click the notification area icon and select **Show Bluetooth Devices**.
2. Right-click on the device you want to change and click **Properties** to:

- Change the **name** of the device (click **Bluetooth**, type a new name and click **OK**).
- Enable/Disable a **service** (click **Services**, clear/tick the check box next to the service and click **OK**).

To Make your Computer Discoverable to Bluetooth Devices
1. Click the notification area icon and select **Open Settings**.
2. Click **Options**, and make sure that *Allow Bluetooth devices to find this computer* check box (**Discovery**) has a tick inside it.
3. Make sure that the *Alert me when a new Bluetooth device wants to connect* check box (**Connections**) has a tick inside it, if you want to be notified when a Bluetooth device wants to connect.

🖉

Bluetooth Help

To get help on Bluetooth configuration and settings, select **Help and Support** from the **Start** menu. Type Bluetooth in the **Search Help** box, and select an item from the returned search results to get more information.

7

Figure 7 - 48
Bluetooth Settings - Options

Trusted Platform Module

The **TPM security chip** allows you to create and manage digital certificates for user and platform authentication. This type of security is usually administered within large enterprises and organizations, and therefore requires implementation by a system administrator before users can access security features.

Individual users can use the TPM as an authentication with the fingerprint reader.

Make sure you have administrator's rights to your computer, and have a *Windows* password enabled for full security protection. In addition **Make sure you prepare a removable media (e.g. a USB flash drive) to store passwords etc. before beginning the TPM initialization process**.

Before setting up the TPM functions you must initialize the security platform.

Enabling & Activating TPM

1. Restart the computer.
2. Enter the **Aptio Setup Utility** pressing **F2** during the POST/startup.
3. Use the arrow keys to select the **Security** menu.
4. Select **Trusted Computing** and press Enter to access the sub-menu.
5. Press Enter to access the **TPM Support** menu and select **Enable** to display the full **TPM configuration** menu.
6. Select **TPM State**, press Enter and select **Enable** to change the TPM state to enabled. You will then need to press **F4** to save the changes and restart the computer.

Figure 7 - 49
TPM State (Enabled)

7. As the computer restarts press **F2** to enter the BIOS again and go to the **TPM Configuration** menu.

8. Select **Pending TPM operation**, press Enter and select the option you require (if you are initializing TPM you should select **Enable Take Ownership**). You will then need to press **F4** to save the changes and restart the computer.

Figure 7 - 50
Pending TPM operation (Enable Take Ownership)

9. You can now **install the TPM driver** (see *"Trusted Platform Module (TPM) Driver Installation" on page 7 - 73*) and then initialize the TPM.

Trusted Platform Module (TPM) Driver Installation

1. Make sure you have enabled and activated the TPM in the BIOS before installing the driver (if you do not do see the note below).
2. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
3. Click **Option Drivers** (button).
4. Click **5.Install TPM Driver > Yes**.
5. Click **Install > Next**.
6. Click the button to accept the license and click **Next**.
7. Click **Next > Next > Install**.
8. Click **Finish > Yes** to restart the computer.

If you have installed the driver without enabling and activating the TPM first, a confirmation message will appear on restart.

```
A configuration change was requested to enable, activate, and allow the creation of
an operator authentication value that permits temporary deactivation of the TPM

Press [F10] to enable, activate, and allow the creation of an operator authentication
value that permits temporary deactivation of the TPM
Press ESC to reject this change request and continue
```

Figure 7 - 51
TPM Confirmation Message

(if the driver is installed without TPM being enabled and activated in the BIOS)

Press **F10** to enable and activate the TPM and you can then configure as overleaf. However it is recommended that you enter the BIOS and take ownership (see page) of the TPM before configuration in *Windows*. Alternatively press **Esc** to continue without making changes the TPM.

7

Initializing TPM

1. Run the application from the **Infineon Security Platform Solution > Manage Security Platform** item in the **Start > Programs** menu.
2. Click **User Settings** (tab) and click **Yes,** or right-click the icon ![icon] in the notification area of the taskbar, and select **Security Platform Initialization** (or click the **Security Platform State** taskbar bubble).
3. The **Quick Initialization** method will automatically be selected for you (if you need to use advanced settings provided by your network administrator then select **Advanced Initialization**).
4. You will need to use a removable media (e.g. a USB Flash Drive) to store passwords and data (keep the media in a safe place until required).
5. Select the drive you want to use from the drop-down menu and click **Next**.

7

Figure 7 - 52
Security Platform Quick Initialization Wizard

6. Choose the **Security Platform Features** you want to use by clicking the appropriate tickbox.
7. Enter a **Basic User Password** (and re-type to confirm it) and click **Next**.

8. Click **Next** to confirm the settings.
9. The computer will then initialize the settings.
10. Click **Finish**.
11. Click the tabs and control panels to adjust the settings.
12. Double-click the icon in the taskbar notification area to access the **Infineon Security Platform Settings Tool**, or right-click the icon and select a menu item.

Help

Right-click the icon in the notification area of the taskbar to bring up the menu to select *Help* or **How to use the Security Platform Features**.

You can also click the **Help** button in any of the Infineon Security Platform Settings Tool tabs to bring up specific help topics on each tab.

Figure 7 - 53
Settings

7

Figure 7 - 54
Infineon Security Platform Settings Tool

Infineon Security Platform Settings Tool

The Infineon Security Platform Settings Tool allows you to manage and check the TPM state, manage your password information, and to backup and restore the TPM data. As TPM is usually administered within large enterprises and organizations, your system administrator will need to assist you in managing the information here.

User Settings

This page allows the settings to be configured for the currently logged in Infineon Security Platform user including the ability to change the password, configure secure e-mail, file and folder encryption and Enhanced Authentication. You can also import or delete certificates protected by the security platform.
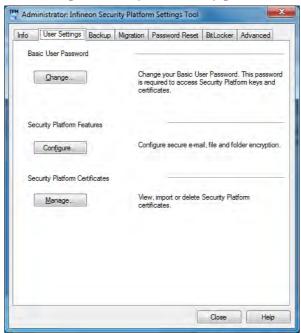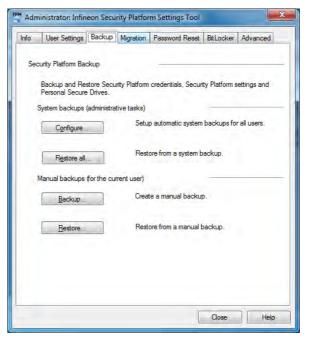
Figure 7 - 55
Infineon Security Platform Settings Tool (User Settings)

7

Backup

Here you can configure backup and restore operations. Backup files contain the computer identification and user identification information which is used to match the machine name and user name with the current machine and user during restoration.

Figure 7 - 56
Infineon Security Platform Settings Tool (Backup)

Migration

The Migration tab is used to help securely transfer keys and certificates from one platform to another.
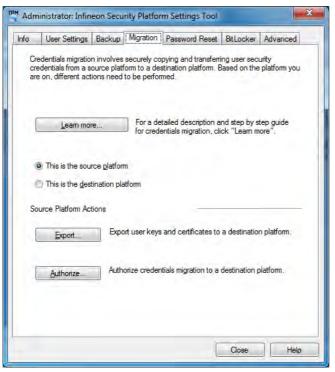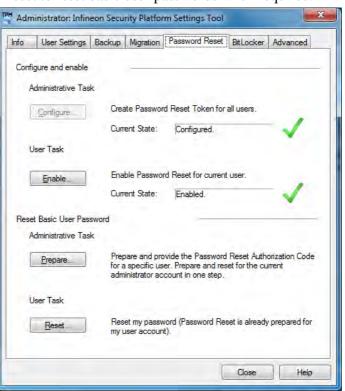
Figure 7 - 57
Infineon Security Platform Settings Tool (Migration)

Password Reset

Use Password Reset to reset basic user passwords when required.

Figure 7 - 58
Infineon Security Platform Settings Tool (Password Reset)

7

BitLocker

BitLocker Drive Encryption can be used in conjunction with the TPM to encrypt data on the disk and is done via the **Microsoft BitLocker Control Panel Applet**. Click **Configure** and select a drive to be encrypted and then follow the Wizard to begin the encryption process.

Figure 7 - 59
Infineon Security Platform Settings Tool (BitLocker)

Access the Microsoft **BitLocker Drive Encryption** control panel applet from the *Windows* control panel (**System and Security**).
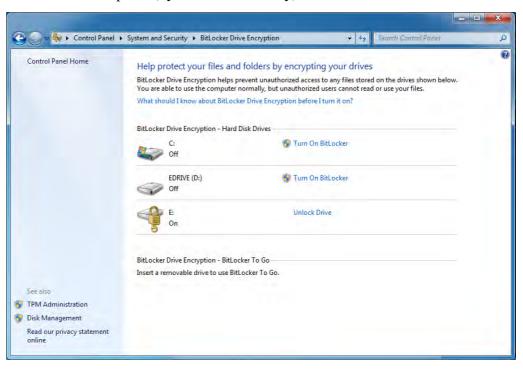
Figure 7 - 60
BitLocker Drive Encryption

Advanced

Configure all the Security Platform owner and policy settings from the Advanced tab. The settings that can be changed are for the local computer only.
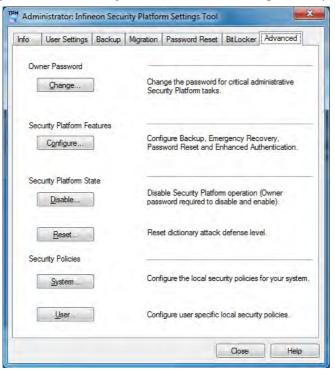
Figure 7 - 61
Infineon Security Platform Settings Tool (Advanced)

THX TruStudio Pro Audio

Install the **THX TruStudio AP** to allow you to configure the audio settings to your requirements for the best performance in games, music and movies.

THX TruStudio AP Installation

1. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/DVD drive.
2. Click **Option Drivers** (button).
3. Click **6.Install THX TruStudio AP > Yes**.
4. Choose the language you prefer and click **Next**.
5. Click **Yes** to accept the license.
6. Click **Next**.
7. Click **Full Installation** (button).
8. Click **Next > Finish** to restart the computer.

THX TruStudio Pro Activation

On the first run of THX TruStudio Pro you will need to **activate** the application.

1. To activate the application you will need to be connected to the internet.
2. Double-click the **THX Activate** icon ▥ on the desktop and click the **Activate** button.
3. The program will connect to the internet to verify the activation key.
4. Click **Finish** to complete the application activation.
5. Restart the computer after the process is complete.

THX TruStudio Pro Application

The application can be run from the shortcut in the **Start** menu (**Start > All Programs >Creative > THX TruStudio Pro Settings**).

Power On/Off ──────▶

Menu

Collapse/Expand View

Figure 7 - 62
THX TruStudio Pro Menu

THX Audio & HDMI

Note that the THX audio effects **do not apply** to audio generated through an HDMI connection.

7

THX Control Panel

Each control has an On/Off button to allow you to enable/disable the control, and most controls feature a slider to adjust the levels (the subwoofer may be turned on/off).

Figure 7 - 63
THX TruStudio Pro Controls

7

- **Surround:** Provides virtual sound channels to control the level of immersion.
- **Crystalizer:** Enhances audio to make it sound livelier.
- **Speaker:** Enhances the bass level of the sound system.
- **Smart Volume:** Minimizes sudden volume changes to avoid the need for constant adjustment.
- **Dialog Plus:** Enhances dialogue levels for movies etc.

THX TruStudio Pro & HDMI

1. When you connect an HDMI display to the HDMI-Out port, the THX Tru Studio Pro controls will be disabled.
2. A warning box will pop-up and will prompt *"Do you want to select another audio device now?"*.
3. Click **No** to continue using the HDMI audio output from your external display (do not attempt to select another audio device when connected to the external HDMI display).

Figure 7 - 64
**THX TruStudio Pro
HDMI Display
Warning**

7

IRST Driver

Install the Intel Rapid Storage Technology to support your SATA drive if set up in **AHCI mode** in the BIOS (see *"SATA Mode (Advanced Menu)" on page 5 - 9*) or if you have set up your hard disks in a RAID configuration (*"Setting Up SATA RAID or AHCI Mode" on page 7 - 2*).

1. Insert the *Device Drivers & Utilities + User's Manual* disc into the CD/ DVD drive.
2. Click **Option Drivers** (button).
3. Click **7.Install IRST Driver > Yes**.
4. Click **Next > Next > Yes > Next > Next**.
5. Click **Finish** to restart the computer (you will need to restart the system again after the computer has rebooted).

Note that after installing the IRST driver the Windows system may take up to 5 minutes at startup to load all the drivers. By default, Intel® Rapid Storage Technology is set to **Automatic** (Delayed Start). See page *8 - 16* for details on how to change this setting.

Chapter 8: Troubleshooting

Overview

Should you have any problems with your computer, before consulting your service representative, you may want to try to solve the problem yourself. This chapter lists some common problems and their possible solutions. This can't anticipate every problem, but you should check here before you panic. If you don't find the answer in these pages, make sure you have followed the instructions carefully and observed the safety precautions in the preface. If all else fails, talk to your service representative. You should also make a record of what happened and what remedies you tried.

Of course, if something goes wrong, it will happen at the most inconvenient time possible, so you should preview this section just in case. If, after you've tried everything, and the system still won't cooperate, try turning it off for a few minutes and then rebooting. You will lose any unsaved data, but it may start working again. Then call your service representative.

8

Basic Hints and Tips

Many of the following may seem obvious but they are often the solution to a problem when your computer appears not to be working.

- **Power** - Is the computer actually plugged into a working electrical outlet? If plugged into a **power strip**, make sure it is actually working. Check the **LED Power Indicators** (see *"LED Indicators" on page 1 - 7*) to see the computer's power status.

- **Connections** - Check all the **cables** to make sure that there are no **loose connections** anywhere.

- **Power Savings** - Make sure that the system is not in **Hibernate** or **Sleep** mode by pressing the keys configured in your P*ower Options* (see *"Configuring the Power Buttons" on page 3 - 8*), the **Fn** + **F4** key combination, or power button to wake-up the system.

- **Brightness** - Check the brightness of the screen by pressing the **Fn** + **F8 and F9** keys to adjust the brightness (see *Table 1 - 5, on page 1 - 13*).

- **Display Choice** - Press **Fn** + **F7** to make sure the system is not set to "external only" display.

- **Boot Drive** - Make sure there are no **optical media and/or USB storage devices** in any connected drive when you start up your machine (this is a common cause of the message "*Invalid system disk - Replace the disk, and then press any key*" / "*Remove disks or other media. Press any key to restart*").

8

Backup and General Maintenance

- Always **backup** your important data, and keep copies of your OS and programs safe, but close to hand. Don't forget to note the **serial numbers** if you are storing them out of their original cases, e.g. in a CD wallet.

- Run **maintenance programs** on your hard disk and OS as often as you can. You may schedule these programs to run at times when you are not using your computer. You can use those that are provided free with your OS, or buy the more powerful dedicated programs to do so.

- Write down your passwords and keep them safe (away from your computer). This is especially important if you choose to use a **Boot** password for the SCU (see *"Security Menu" on page 5 - 10*).

- Keep copies of vital **settings files** such as network, dialup settings, mail settings etc. (even if just brief notes).

8

🔔
Warranty

The CPU is not a user serviceable part. Opening this compartment, or accessing the CPU in any way, may violate your warranty.

Viruses

- Install an **Anti-Virus** program and keep the **definitions file** (the file which tells your program which viruses to look for) up to date. New computer viruses are discovered daily, and some of them may seriously harm your computer and cause you to lose data. **Anti-Virus** programs are commercially available and the **definitions file updates** are usually downloadable directly from the internet.

- Be careful when opening e-mail from sources you don't know. **Viruses** are often triggered from within **e-mail attachments** so take care when opening any attached file. You can configure most **Anti-Virus** programs to check all **e-mail attachments**. **Note**: You should also beware of files from people you know as the virus may have infected an **address book** and been automatically forwarded without the person's knowledge.

- Keep a "**Bootable CD-ROM/DVD-ROM/USB storage device**" (this CD/DVD/USB device provides basic information which allows you to startup your computer) handy. You may refer to your OS's documentation for instructions on how to make one, and many **Anti-Virus** programs will also provide such a disk (or at least instructions on how to make one).

8

Upgrading and Adding New Hardware/Software

• Do not be tempted to make changes to your **Windows Registry** unless you are very sure of what you are doing, otherwise you will risk severely damaging your system.

• Don't open your computer or undertake any repair or upgrade work if you are not comfortable with what you are doing.

• Read the **documentation**. We can assume, since you are reading this that you are looking at the computer's manual, but what about any new peripheral devices you have just purchased? Many problems are caused by the installation of new hardware and/or software. Always refer to the documentation of any new hardware and/or software, and pay particular attention to files entitled "**READ ME**" or "**READ ME FIRST**".

• When installing a new device always make sure the device is powered on, and in many cases you will need to restart the computer. Always check that all the cables are correctly connected.

• Make sure you have installed the **drivers** for any new hardware you have installed (latest **driver files** are usually available to download from vendor's websites).

• Thoroughly check any **recent changes** you made to your system as these changes may affect one or more system components, or software programs. If possible, go back and undo the change you just made and see if the problem still occurs.

Troubleshooting

- Don't over complicate things. The less you have to deal with then the easier the source of the problem may be found; **Example** - if your computer has many devices plugged into its ports, and a number of programs running, then it will be difficult to determine the cause of a problem. Try disconnecting all of the devices and restarting the computer with all the peripheral devices unplugged. A process of elimination (adding and removing devices and restarting where necessary) will often find the source of a problem, although this may be time consuming.

8

Problems & Possible Solutions

Problem	Possible Cause - Solution
You turned the **power on** but it doesn't work.	*Battery missing / incorrectly installed.* Check the battery bay, make sure the battery is present and seated properly (the design of the battery only allows it to go in one way). Make sure there's nothing interfering with the battery contacts.
The **Battery LED power** indicator ☐, is blinking orange.	*Low Battery.* Plug in the AC power source. If the computer doesn't start up immediately, turn it off then on again.
You are losing **battery power** too quickly.	*The system is using too much power.* If your *OS* has a *Power Options* scheme (see *"Power Plans" on page 3 - 4*) check its settings. You may also be using an ExpressCard device/USB device/external device that is drawing a lot of power. *You are attempting to run an SLI configuration on battery power.* Due to the high power and system demands created by enabling SLI Configuration, **you should not enable SLI configuration if your computer is powered by battery only**.
Actual **battery operating time** is shorter than expected.	*The battery has not been fully discharged before being recharged.* Make sure the battery is fully discharged and recharge it completely before reusing (see *"Power Conservation Modes" on page 3 - 10*). Check the settings of any active power plan (see *"Power Plans" on page 3 - 4*). *A peripheral device/USB device is consuming a lot of power.* Turn off/remove the unused device to save power.

8

Troubleshooting

Problem	Possible Cause - Solution
The **computer feels too hot**.	Make sure the computer is properly ventilated and the vents/fan intakes are not blocked. If this doesn't cool it down, put the system into **Hibernate** mode or turn it off for an hour. Make sure the computer isn't sitting on a thermal surface (see *"Overheating" on page 1 - 19*). Make sure you're using the correct adapter.
	Make sure that your notebook is completely powered off before putting it into a travel bag (or any such container). Putting a notebook which is powered on in a travel bag may cause the vents/fan intakes to be blocked.
Nothing appears on screen.	*The system is in a power saving mode.* Toggle the **Fn + F4** (see *"Configuring the Power Buttons" on page 3 - 8*).
	\ *The screen controls need to be adjusted.* Toggle the screen control **Fn + F8/F9** key combinations. If you're connected to an external monitor, make sure it's plugged in and turned on. You should also check the monitor's own brightness and contrast controls.
	The computer is set for a different display. Toggle the screen display key **Fn + F7** combination. If an external monitor is connected, turn it on.
	*The **screen saver** is activated.* Press any key or touch the **TouchPad**.
No image appears on the **external monitor** I have plugged in and powered on.	*You haven't installed the video driver and configured it appropriately from the **Control Panel***. See *"NVIDIA Video Driver Controls" on page C - 1* for instructions on installing and configuring the video driver.

8

Problem	Possible Cause - Solution
You forget the **boot password**.	*If you forget the password, you may have to discharge the battery of the CMOS.* Contact your service representative for help.

> ⚠
> **Password Warning**
>
> If you choose to set a boot password, **NEVER** forget your password. The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.

Problem	Possible Cause - Solution
The **CD/DVD** cannot be read.	*The compact disc is dirty.* Clean it with a cleaner kit.
The **Optical Disk Drive tray** will not open when there is a disc in the tray.	*The disc is not correctly placed in the tray.* Gently try to remove the disc using the eject hole (see *"Loading Discs" on page 2 - 3*).
The **DVD regional codes** can no longer be changed.	*The code has been changed the maximum **5** times.* See *"DVD Regional Codes" on page 2 - 5*.
The **TouchPad** doesn't work.	*The Touchpad has been disabled.* Press the Touchpad toggle (**Fn + F1**) key combination (make sure you have installed the Touchpad driver.

8

Troubleshooting

Problem	Possible Cause - Solution
I am sliding my finger up and down on the right side of the **TouchPad to scroll** a Window and the **TouchPad does not respond**.	*There are different TouchPad versions available on this computer, and this version requires tapping/holding to scroll.* Either tap repeatedly, or hold the finger down, at the top or bottom right of the touchpad (depending on the scrolling direction required) to scroll the window.
The **system freezes** or the screen goes dark.	*The system's power saving features have timed-out.* Use the AC/DC adapter, press a key on the keyboard, or press the sleep (**Fn + F4**) key combination, or press the power button if no LEDs are lit.
The system never goes into a **power saving mode**.	Power Options features are not enabled. Go to the *Windows* Power Options menu and enable the features you prefer (see *"Power-Saving States" on page 3 - 6*). Make sure you have enabled **Hibernate** mode from the control panel.
The **Wireless LAN/Bluetooth/PC Camera modules** cannot be **detected**.	*The modules are off.* Check the appropriate Touch Sensor indicator to see if the modules are on or off (see *"Touch Sensor Instant Keys" on page 1 - 8*). If the LED indicator is not illuminated, then press the appropriate touch sensor instant key/function key combination in order to enable the modules.
The **Wireless LAN/Bluetooth/PC Camera modules** cannot be **configured**.	*The driver(s) for the module(s) have not been installed.* Make sure you have installed the driver for the appropriate module (see the instructions in *Chapter 7 "Modules"* for the appropriate module).

8

Problem	Possible Cause - Solution
When a **DVD** is played in **Windows Media Player/ Media Center**, the **audio track** in other languages (commentaries etc.) **is not clear** if connected to the S/PDIF-Out Jack.	*This is an issue with Windows Media Player/Media Center and audio output through the S/PDIF-Out Jack.* We recommend that you use the **Power DVD** application to play DVDs.
Nothing appears on the screen when the **PC Camera** software is run.	*You have selected an external display as the default display device*. The PC Camera application software needs to be run while the *default notebook LCD* is the selected display device. After a camera picture is obtained on the default notebook LCD, you may then use the **Fn + F7** to toggle through the display modes (give the screen time to refresh). If you have selected an external display as your display device do not run the PC Camera software application until you have switched back to the notebook LCD.
A file cannot be copied to/from a connected **Bluetooth** device.	*The transfer of data between the computer and a Bluetooth enabled device is supported **in one direction only (simultaneous data transfer is not supported)**.* If you are copying a file from your computer to a Bluetooth enabled device, you will not be able to copy a file from the Bluetooth enabled device to your computer until the file transfer process from the computer has been completed
The **Bluetooth** module is **off** after resuming from Sleep.	*The Bluetooth module's default state will be off after resuming from the Sleep power-saving state.* Use the key combination (**Fn + F12**) to power on the Bluetooth module after the computer resumes from Sleep.

8

Troubleshooting

Problem	Possible Cause - Solution
I have **installed the** *Windows 7* operating system but **cannot hear any sound**.	*The audio driver is not installed.* Install all the drivers as instructed in *Chapter 4 "Drivers & Utilities"* and **make sure you install the audio driver** (see *"Audio" on page 4 - 7*).
The **sound** cannot be heard or the volume is very low.	*The volume might be set too low.* Check the volume control in the *Volume Control Panel* in the *Windows* taskbar, use the key combination **Fn + F5** and **F6 or** move your finger slowly along the volume control slider to adjust the system volume (see *"Audio Features" on page 2 - 8*/*"Touch Sensor Instant Keys" on page 1 - 8*) to adjust.
No sound can be heard through an **HDMI** connected display device.	*You have not configured the HDMI audio output.* See *"HDMI Audio Configuration" on page C - 18*.
Audio Volume is too low when listening through **headphones**.	*You have set the Speaker Configuration to 5.1 or 7.1 Speaker.* It is recommended that you set the **Speaker Configuration** to **Stereo** (not to 5.1 or 7.1 Speaker) when listening through headphones in order to maximize audio quality. See *"Audio Features" on page 2 - 8*.
The **THX TruStudio Pro** audio controls don't work when the system is connected to an **external display through an HDMI cable**.	*Note that THX TruStudio Pro will be disabled when you are connecting to an external display through an HDMI connection.* See *"THX TruStudio Pro & HDMI" on page 7 - 87*.

8

Problem	Possible Cause - Solution
The computer is off (or in Sleep Mode) but powered by the AC/DC adapter plugged in to a working outlet, or by battery with a capacity above 20%. **I have plugged a device into the powered USB port** in order to charge it, but **the device is not charging**.	*The port is not powered on.* Toggle power to the port using the **Fn + power button** combination.
	This function may not work with certain external USB compliant devices (check your device's documentation). If this is the case, **power the computer on and connect the external USB device** in order to charge it.
	Note that this function is designed to help **charge USB compliant devices**, but is **not designed to allow their operation**.
The **battery doesn't appear to be charging** after running computer games or high-end video applications on battery power.	*The computer has been used to run high intensity programs (e.g. computer games) on DC (battery) power.* If the computer is running a high intensity program on battery power you should immediately plug in the AC/DC adapter when the system displays a low battery warning. However (due to safety limitations) the battery will not start to charge until the system has been turned off, and the battery has cooled down sufficiently. This may take up to around 5 or 6 hours depending on the environmental conditions.
	It is recommended that when running programs that use a substantial amount of system resources (such as computer gaming or any high-end video applications) that you power the machine by using the AC/DC adapter. Note that **you should not enable SLI configuration if your computer is powered by battery only** (see *"SLI Multi GPU Configuration & Power" on page C - 15).*

8

Troubleshooting

Problem	Possible Cause - Solution
When the battery is being used to power the system in an environment with an ambient temperature of below 10°C/50°F, **the battery reaches a low level very quickly.**	*This can occur as the battery cell performs poorly in a low temperature environment, especially with a discharge rate of over 2C.* Systems powered by the battery will perform normally at environmental temperatures over 10°C/50°F. To use the system at environmental temperatures below 10°C/50°F, it is recommended that the system is powered by the AC/DC adapter. **Battery Notes:** Note that when the the battery capacity is measured it may read less than the 5300mAh indicated on the label, and possibly less than 5000mAh. This can be due to either of the following factors: • The battery capacity listed on the label is defined by cell character specification. There is a -5% capacity tolerance based on a test at 0.2C charge/0.2C discharge. Therefore 5035mAh (-5% of 5300mAh) meets the battery capacity specification listed. • This system runs with a 0.6C charge/1C~2.5C discharge rate. The higher system charge/discharge rate can result in a lower battery capacity measurement reading.

8

Problem	Possible Cause - Solution
The **Bluetooth module is experiencing problems**/ **2 Bluetooth adapters** appear in the Device Manager under **Bluetooth Radios.**	*There is a conflict between an existing Bluetooth module and a Bluetooth & WLAN combination module.* **You should have only one Bluetooth module installed in order to prevent any conflicts (this includes the Bluetooth element of any combination WLAN & Bluetooth module)**. If you have an existing Bluetooth module installed and then decide to add a combo WLAN & Bluetooth module at a later date, then uninstall the original Bluetooth module before installing the combo module.

Troubleshooting

Problem	Possible Cause - Solution
Note that **after installing the IRST driver** the *Windows* system may take up to **5 minutes at startup to load all the drivers**.	By default, **Intel® Rapid Storage Technology** is set to **Automatic (Delayed Start)**. If you want to change the setting then follow these steps to change the Startup type: 1. Go to **Intel® Rapid Storage Technology Properties** 2. Select the **General** tab. 3. Change the Startup type to **Automatic**. 4. Click **Apply** and **OK** to save.

Bluetooth Connection Problems

If you are experiencing problems connecting to some Bluetooth devices (in particular certain mobile phones and headsets) it maybe necessary to download and install the **Windows Mobile Device Center** software (for *Windows Vista* and *Windows 7*). Go to the Microsoft website and search for the **Microsoft Windows Device Center Driver for** *Windows Vista* (*64-bit or 32-bit*) **and** *Windows 7* (*64-bit or 32-bit*), and then download the driver.

1. Install the *Microsoft Windows Device Center Driver* as appropriate for your operating system.
2. *Windows Vista* will automatically configure the driver for you, however *Windows 7* requires further configuration.
3. Make sure the Bluetooth device is powered on.
4. Go the *Windows 7* control panel and double-click **Device Manager** (**Hardware and Sound > Devices and Printers**).
5. **Bluetooth Peripheral Device(s)** will be listed under **Other Devices** (note this will only be listed if you have connected, or tried to connect to, a Bluetooth device previously).

Figure 8 - 1 **- Device Manager**

🖉

Bluetooth Peripheral Devices

You will need to repeat the procedure listed here for all **Bluetooth Peripheral Devices** listed under **Other Devices** i.e. until there are no more **Bluetooth Peripheral Devices** listed under this menu heading.

8

6. Right-click **Bluetooth Peripheral Device** and click on *Update Driver Software*.
7. Click **Browse my computer for driver software**.
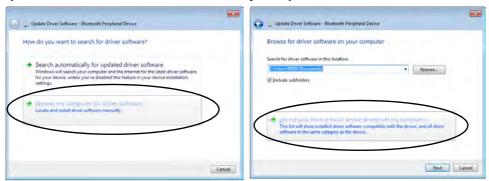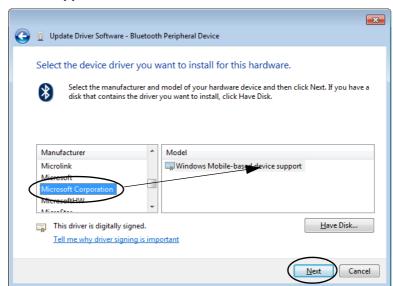8. Click **Let Me pick from a list of device drivers on my computer**.

Figure 8 - 2 **- Browse my computer.../Let me pick from...**

8

9. Select **Bluetooth Radios** from the list.

Figure 8 - 3 **- Select Bluetooth Radios**

10. A list of drivers will appear with **Manufacturer** on one side and **Model** in the other.
11. Choose **Microsoft Corporation** (make sure you choose the full name **Microsoft Corporation** and do not choose **Microsoft** - Note that you must have installed the **Microsoft Windows Device Center Driver** for **Microsoft Corporation** to appear in the list).
12. Select **Windows Mobile-based device support** from the **Model** list.

Make sure you select
Microsoft Corporation

Figure 8 - 4 **- Select Device Driver**

13. Click **Next > Yes** and the driver will install.
14. Click **Close** to complete the installation.

15. The **Device Manager** should now display the **Windows Mobile-based device support** under **Bluetooth Radios**.

16. You will need to repeat the process for any other **Bluetooth Peripheral Devices** listed under **Other Devices**.
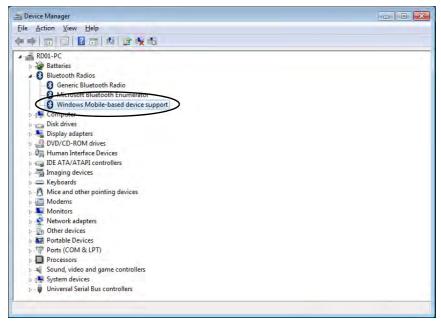

Figure 8 - 5 **- Device Manager - Bluetooth Radio**

Intel® Centrino Advanced WLAN & Bluetooth V3.0+HS Combo Modules

Note that, at the time of going to press, **Intel® Centrino® Advanced-N 6230** WLAN & Bluetooth V3.0+HS combo modules use the standard Bluetooth configuration in *Windows 7* (see *"Standard Bluetooth Configuration in Windows 7" on page 7 - 66*). **Do not use** the Bluetooth & WLAN Combo settings information outlined from page *7 - 58* to page *7 - 64*.

Driver Release Update

Note also that, at the time of going to press, this module does not support high speed Bluetooth (V3.0) data transfer. **Intel** have scheduled a driver release to allow this module to support high speed data transfer, so please check with Intel or your service center for details.

8

Appendix A: Interface (Ports & Jacks)

Overview

The following chapter will give a quick description of the ports & jacks which allow your computer to communicate with external devices, connect to the internet etc.

A

Ports and Jacks

Item	Description
Card Reader MMC / SD / MS	The card reader allows you to use the following digital storage cards: MMC (MultiMedia Card) / RSMMC SD (Secure Digital) / Mini SD / SDHC / SDXC MS (Memory Stick) / MS Pro / MS Duo Push the card into the slot and it will appear as a removable device.
DC-In Jack	Plug the supplied AC/DC adapter into this jack to power your computer.
DisplayPort	The DisplayPort is a digital display interface standard that allows a digital audio/video interconnect, between the computer and its external display or a home-theater system.
DVI-Out Port	The DVI-Out (**Digital Visual Interface**) Port is a video connector interface. This allows you to connect an external monitor, TV or Flat Panel Display etc. as a display device (see *"Configuring an External Display (NVIDIA)" on page C - 7*) by means of a DVI cable. If you are using an older type of monitor you will need to use a converter to convert the signal from DVI to VGA.

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Item	Description
e-SATA/Powered USB 3.0 Port ◂⇠🔋 / e-SATA	This is a combined **e-SATA** (**external Serial Advanced Technology Attachment**)/ USB 3.0 compatible port. Plug external Serial ATA hard drives into this **e-SATA** (**external Serial Advanced Technology Attachment**) port. *See *"USB 2.0/1.1 Ports*" on page A - 5* for further USB port information. **Note:** The **powered USB 3.0 port** (see *"Left View" on page 1 - 17*) may be toggled on /off by means of the **Fn + Power Button** key combination (**press for around 1 to 2 seconds** to toggle). When the powered USB port is on it will supply power (**for charging devices only, not for operating devices**) when the system is off but still powered by the AC/DC adapter plugged into a working outlet, or powered by the battery with a capacity level above 20% (this may not work with certain devices - see page *8 - 13*). **Note:** This function is designed to help **charge USB compliant devices**, but is **not designed to allow their operation**.
HDMI-Out Port **HDMI**	The HDMI-Out (**High-Definition Multimedia Interface**) port is an audio/video connector interface for transmitting uncompressed digital streams. This allows you to connect an external monitor, TV or Flat Panel Display etc. as a display device (see *"Configuring an External Display (NVIDIA)" on page C - 7*) by means of a HDMI cable. **Note that HDMI carries both audio and video signals** (see *"HDMI Audio Configuration" on page C - 18*).
Headphone-Out Jack 🎧	**Headphones** or **speakers** may be connected through this jack. **Note**: Set your system's volume to a reduced level before connecting to this jack.

A

Interface (Ports & Jacks)

Item	Description
Line-In Jack ((•→))	The Line-In jack allows you to play audio sources through the computer's speakers. Note that audio input through Line-in will default to the **mute** setting. To set up your audio sources to play through the Line-in jack go to the **Sound** 🎧 control panel and make sure the Mute box is not ticked.
Microphone-In Jack 🎤	Plug an external microphone in to this jack to record on your computer.
Mini-IEEE 1394 Port **IEEE 1394**	This allows high-speed connection to various peripheral devices, e.g. external disk drives and digital cameras (**see note below**). 🖉 **IEEE 1394** The Mini-IEEE 1394 ports only support **SELF POWERED** IEEE 1394 devices.
RJ-45 LAN Jack 🖧	This port supports LAN (Network) functions. **Note**: Broadband (e.g. ADSL) modems usually connect to the LAN port.
S/PDIF-Out Jack ⊓⊔→	This S/PDIF (**Sony/Philips Digital Interface Format**) Out Port allows you to connect your DVD-capable PC to a Dolby AC-3 compatible receiver for "5.1" or 'dts' surround sound.

A

Item	Description
Security Lock Slot	To prevent possible theft, a Kensington-type lock can be attached to this slot. Locks can be purchased at any computer store.
USB 2.0/1.1 Ports* USB 3.0 Port	These USB (**Universal Serial Bus**) 2.0 compatible ports (USB 2.0 is fully USB 1.1 compliant) are for low-speed peripherals such as keyboards, mice or scanners, and for high-speed peripherals such as external HDDs, digital video cameras or high-speed scanners etc. Devices can be plugged into the computer, and unplugged from the computer, without the need to turn the system off (if the power rating of your USB device is 500mA or above, make sure you use the power supply which comes with the device). This model has three USB 3.0 ports on the left side of the computer which are denoted by their blue color. USB 3.0 will transfer data much faster than USB 2.0, and is backwards-compatible with USB 2.0. The USB 3.0 port requires a driver installation (see *"USB 3.0" on page 4 - 7*).

A

Interface (Ports & Jacks)

Appendix B: Control Center

Overview

The following chapter will give a quick description of the functions of the **Control Center**. The **Control Center** gives quick access to frequently used controls, power management features and enables you to quickly turn modules on/off. Click the **Control Center** icons to toggle the appropriate function, or hold the mouse button down and move the slider where applicable. Certain functions will automatically be adjusted when a power mode is selected.

Figure B - 1 **- Control Center**

B

Power Modes

You can set a **Power Mode** by clicking the appropriate icon at the top of the **Control Center**. Each power mode will affect the power status of modules (e.g. WLAN, Bluetooth, 3G or Camera), screen brightness, TouchPad power and Silent Mode.

You can click a **Control Center** icon to set an overall power mode and then click individual icons in the **Control Center** to power on/off any modules etc.

The **table overleaf** illustrates the basic settings for each power mode. If you choose user defined the settings will correspond to your selected system settings.

B

Modes		Power Saving	Flight	Entertainment	Quiet	Performance	User Defined
Icon							
Power Plan		Power Saving	Balanced	Power Saving	Power Saving	High Performance	User Defined
Power Conservation Mode		Energy Star	BIOS Default	Energy Star	Energy Star	Performance	
Brightness		14	42	100	42	100	
WLAN		OFF	OFF	ON	ON	ON	
Bluetooth		BIOS Defined					
PC Camera		OFF	OFF	OFF	ON	ON	
TouchPad		ON	ON	OFF	ON	ON	

Table B - 1- **Power Modes**

B

Control Center

Power Status

The **Power Status** icon will show whether you are currently powered by the battery, or by the AC/DC adapter plugged in to a working power outlet. The power status bar will show the current battery charge state.

Brightness

The **Brightness** icon will show the current screen brightness level. You can use the slider to adjust the screen brightness or the **Fn** + **F8/F9** key combinations, or use the **Fn+ F2** key combination to turn off the LED backlight (press any key to turn it on again). Note that screen brightness is also effected by the **Power Mode** selected (see *Table B - 1, on page B - 3*).

Volume

The **Volume** icon will show the current volume level. You can use the slider to adjust the Volume or the **Fn** + **F5/F6** key combinations, or use the **Fn+ F4** key combination to mute the volume.

Power Conservation

This system supports **Energy Star** power management features that place computers (CPU, hard drive, etc.) into a low-power sleep modes after a designated period of inactivity (see *"Power Conservation Modes" on page 3 - 10*). Click either the **Performance**, **Balanced** or **Energy Star** button. Click in a blank area of the icon or press a key on the keyboard to exit **Power Conservation Mode** without making any changes.

Sleep 💤

Click the **Sleep** button to bring up the **Hibernate** ⊖ or **Sleep** 🔘 buttons, and click either button to have the computer enter the appropriate power-saving mode (see *"Power-Saving States" on page 3 - 6*). Click in a blank area of the icon or press a key on the keyboard to exit **Power Conservation Mode** without making any changes

Display Switch

Click the **Display Switch** button to access the menu (or use the ⊞ + **P** key combination) and select the appropriate attached display mode (see page *C - 13*).

Time Zone 🕐

Clicking the **Time Zone** button will access the **Date and Time** *Windows* control panel.

Desktop Background

Clicking the **Desktop Background** button will allow you to change the desktop background picture.

K/B LED

Click to access the keyboard setting control to configure the keyboard LED.

TouchPad/PC Camera/Wireless LAN Module /Bluetooth

Click any of these buttons to toggle the TouchPad or module's power status. A crossed out icon will appear over the top left of the icon 🚫 when it is off. Note that the power status of a module, and TouchPad power, is also effected by the **Power Mode** selected (see *Table B - 1, on page B - 3*).

B

Control Center

Caps Lock/Scroll Lock/ Number Lock

Click the button to toggle the appropriate lock mode.

B

Appendix C: NVIDIA Video Driver Controls

The basic settings for configuring the LCD are outlined in *"Video Features" on page 1 - 21*.

NVIDIA Video Driver Installation

Make sure you install the drivers in the order indicated in *Table 4 - 1, on page 4 - 3*.

1. Insert the *Device Drivers & Utilities + User's Manual* disc and click *Install Drivers* (button).
2. Click **2.Install VGA Driver > Yes**.
3. Click **AGREE AND CONTINUE** (button) to accept the terms of the license agreement.
4. Click **Next**.
5. Click the **RESTART NOW** button to restart the computer.

After Video (VGA) driver has been installed, and the system restarted, the OS will automatically run the "Winsat.exe" to rate the performance. Allow time for this process to finish and do not restart during this process (if you have restarted the system see *"Windows Update" on page 4 - 8*).

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Video Card Options

Note that card types, specifications and drivers are subject to continual updates and changes. Check with your service center for the latest details on video cards supported (**see** *"Video Adapter" on page D - 2*, **or contact your service center for details**).

C

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NVIDIA Control Panel

To access the **Ge-Force.....** control panel from the desktop; right-click the **desktop**, then click **NVIDIA Control Panel**.
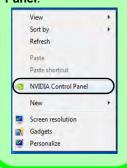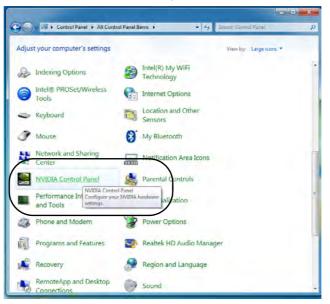

Figure C - 1

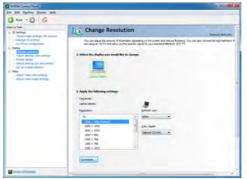**NVIDIA GeForce..... Control Panel**

NVIDIA Control Panel

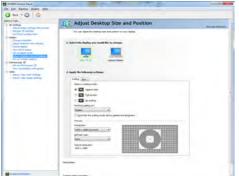More advanced video configuration options are provided in the **NVIDIA Control Panel** tab.

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Double-click **NVIDIA Control Panel** (click "**Classic View**" from the left of the menu if you are in **Control Panel Home**).
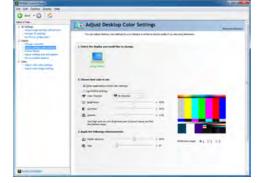
The **NVIDIA Control Panel** provides additional video configuration controls and tools which allow quick access to features such as display configuration, 3D Settings and Help menus etc.

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Navigating the Control Panel

Navigate through the control panels in much the same way as you would a web page. Click on the sub-heading tasks in the left menu (and on the highlighted links) for information. Use the buttons on the top left to go back, forward etc.
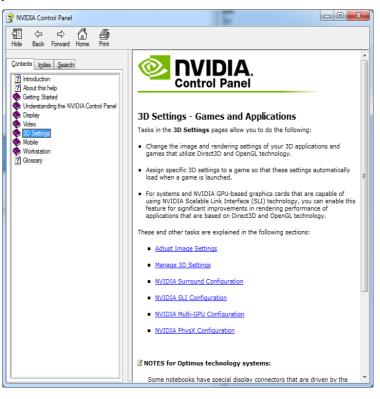
Figure C - 2
NVIDIA Control Panels

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The **Help** menus provide index and search features, and direct links to the NVIDIA website etc.

Figure C - 3
Help Menu

Display Devices

Note that you can use a DVI cable connected to the DVI-Out port, or an HDMI (High-Definition Multimedia Interface) cable connected to the HDMI-Out port to connect an external display (if you are using an older type of monitor you can use a converter to convert the signal from DVI to VGA). See your display device manual to see which formats are supported.

1. The built-in LCD.
2. An external display connected to the DVI-Out Port or DisplayPort.
3. An external display/TV (if the TV supports an HDMI connection) connected to the HDMI-Out Port.

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Display Devices

Besides the built-in LCD, you can also use an external monitor/flat panel display as your display device. The display options are:

- The built-in LCD.
- An external display connected to the DVI-Out port.
- An external display connected to the HDMI-Out port.

Note that HDMI supports video and audio signals.

Note that **THX TruStudio Pro will be disabled** when you are connecting to an external display through an **HDMI connection**.

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SLI Configuration & Multiple Displays

Note that if SLI configuration is enabled only a **Single** display may be used as the display device.

Display Modes

Single Display Mode
Only one of your displays is used.

Duplicate Displays
Duplicate simply shows an exact copy of the Primary display desktop on the other display(s). This mode will drive multiple displays with the same content.
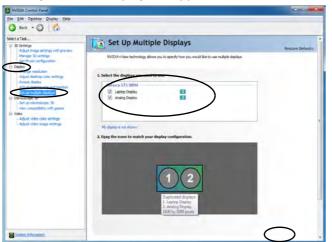
Extend Desktop
Extend Desktop treats both connected displays as separate devices, and they act as a virtual desktop resulting in a large workspace. When enabled, you can drag any icons or windows across to the other display desktop. It is therefore possible to have one program visible in one of the displays, and a different program visible in the other display.

C

Configuring an External Display (NVIDIA)

You can use the **NVIDIA control panel** to configure any attached displays.

1. Attach your external display to the DVI-Out Port or HDMI-Out port, and turn it on.
2. Go to **NVIDIA Control Panel** (see page *C - 2*).
3. Double-click **Display** (if the sub-menus are not visible)**,** and then click **Set up multiple displays**.
4. Any attached display will appear under "**1.Select the displays you want to use.**"

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HDMI Audio Setup

See *"HDMI Audio Configuration" on page 2 - 8* for instructions on configuring audio for HDMI display devices.

Set up your external display (TV or LCD) for HDMI input (see your display device manual).

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Display Not Shown

If the attached display does not appear in the *"1.Select the displays you want to use."* window, click *"My Display is not shown..."* and then click the appropriate button to force detection of the missing display.

Figure C - 4
Set Up Multiple Displays

C

5. Click the tickbox alongside any display you wish to use.
6. Click **Apply > Yes** to save any changes made (the **Apply** button will appear in the bottom right of the control panel when changes have been made).

Duplicating the Displays

1. Attach your external display to the DVI-Out Port or HDMI-Out port, and turn it on.
2. Go to **NVIDIA Control Panel** (see page *C - 2*).
3. Double-click **Display** (if the sub-menus are not visible)**,** and then click **Set up multiple displays**.
4. Any attached display will appear under *"1.Select the displays you want to use."*
5. Click the tickbox alongside any display you wish to use.
6. Right-click one of the display icons and click "**Duplicate displays...."** (select which is to be the primary display) to duplicate the desktop on both displays.

Figure C - 5
Duplicate Displays

Right-click to select Duplicate displays and which is to be used as the primary clone
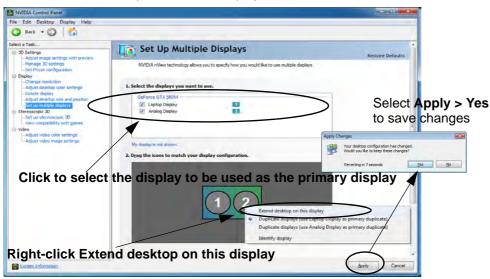
Select **Apply > Yes** to save changes

7. Click **Apply > Yes** to save any changes.

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Extending the Display

1. Attach your external display to the DVI-Out Port or HDMI-Out port, and turn it on.
2. Go to **NVIDIA Control Panel** (see page *C - 2*).
3. Double-click **Display** (if the sub-menus are not visible)**,** and then click **Set up multiple displays**.
4. Click to select a primary display under *"1.Select the displays you want to use."*
5. Right-click one of the display icons and click "**Extend desktop on this display....**" to extend the desktop across both displays.

Select **Apply > Yes** to save changes

Click to select the display to be used as the primary display

Right-click Extend desktop on this display

6. Click **Apply > Yes** to save any changes.

Changing the Primary Display on Extended Displays

If you want to switch the primary display if the displays are extended then right-click the secondary display icon. Select "**Make this the Windows main display**". **Click Apply > Yes** to save the change (see over).
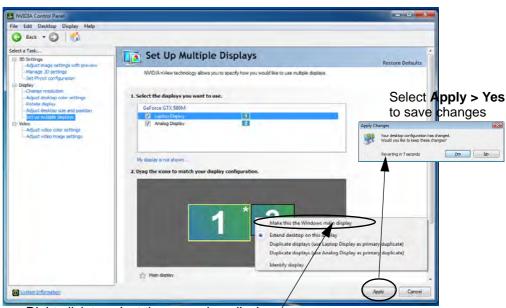
Figure C - 6
Extend the Display

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Changing the Primary Display on Extended Displays
1. If you want to switch the primary display if the displays are extended then right-click the **secondary** display icon.
2. Select **Make this the Windows main display**.
3. Click **Apply > Yes** to save the change.

Figure C - 7
Switch Primary Display

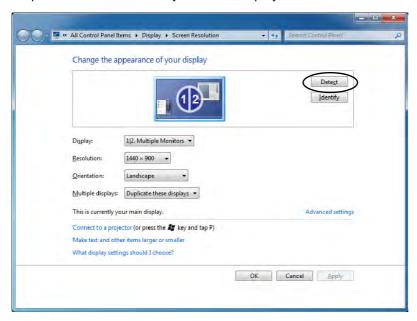Select **Apply > Yes** to save changes

Right-click to select the secondary display and select **Make this the Windows main display**.

Attaching Other Displays (Win 7)

Configuring an External Display in Windows 7

1. Attach your external display to the DVI-Out Port or HDMI-Out port, and turn it on.
2. Go to the **Screen resolution** control panel.
3. Click the **Detect** button.
4. The computer will then detect any attached displays.

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Function Key Combination

You can use the **Fn + F7** key combination to toggle through the display options:

- Notebook Only
- External Display Only
- Notebook + External Display

Make sure you give the displays enough time to refresh.

Figure C - 8
Screen Resolution Multiple Displays (Win 7)

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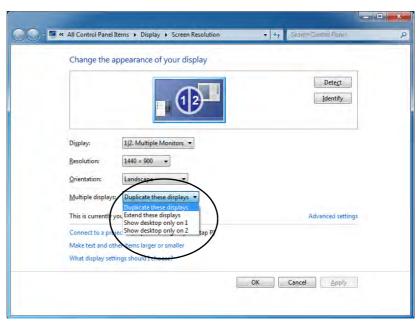5. You can configure the displays from the **Multiple Displays** menu.

Figure C - 9
Screen Resolution Multiple Display Options (Win 7)

- Duplicate these displays - Shows an exact copy of the main display desktop on the other display(s)
- Extend these displays - Treats both connected displays as **separate** devices
- Show desktop only on 1/2 - Only one of your displays is used.

Using the Windows Logo Key ⊞ + P Key Combination to Switch Displays

You can also use the ⊞ + **P** key combination to quickly change display configuration and modes (this is particularly useful when attaching a projector) in *Windows 7*.

1. Attach your external display to the external monitor port and turn it on.
2. Press the ⊞ + **P** key combination.
3. An on-screen menu will pop up.
4. Use the cursor keys (or ⊞ + **P**) to select the appropriate configuration from the menu, and press Enter to confirm the selection.
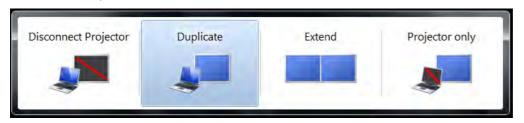

Figure C - 10
⊞ + P Display Configuration Selection (Win 7)

You can also use the **Display Switch** 📺 button in the **Control Center** to access the menu and select the appropriate attached display mode.
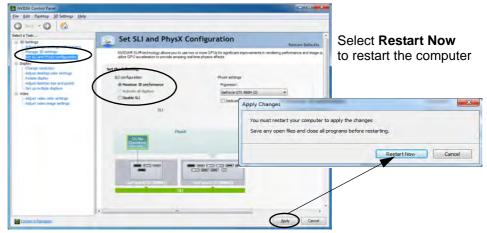
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Video Card Options

Note that card types, specifications and drivers are subject to continual updates and changes. Check with your service center for the latest details on video cards supported. Note that not all video card options for this computer model series support SLI configuration (**see *"Video Adapter Options" on page D - 2*, or contact your service center for details**).

Figure C - 11

Set SLI Configuration

SLI Multi GPU Configuration

This computer features an **NVIDIA Scalable Link Interface (SLI)** that improves graphic quality and performance by combining **dual** NVIDIA GPUs (two video cards are required) in a single system. To enable/disable SLI Configuration:

1. Go to **NVIDIA Control Panel** (see page *C - 2*).
2. Click "**+**" next to **3D Settings** if its sub-items are not shown and then click **Set SLI and PhysX configuration**.

Select **Restart Now** to restart the computer

3. Click "**Maximize 3D Performance**" under "**SLI configuration:**".
4. Click to select "**PhysX settings;** Auto-select (recommended) is the default setting.
5. Click **Apply** and **Restart Now** to restart the computer (see over).

SLI Multi GPU Configuration & Power

Note that due to the high power and system demands created by enabling an SLI configuration, **you should not power the system using the battery only** and you **will require identical (300W) dual power adapters, connected to a power converter box, to power the system**.
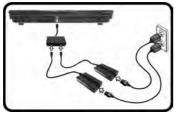

Figure C - 12 **- Dual Power Adapters & Converter Box**

- Only **enable SLI configuration if the system is powered by identical dual power adapters connected by means of the power converter box (factory option)**.

- If the computer is currently powered by battery only **do not enable SLI configuration**.

- If you have currently enabled SLI configuration, and the computer is powered by the dual AC/DC adapters, **do not switch to battery power only** (or go to the NVIDIA Control Panel and disable SLI configuration before switching to battery power only).

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SLI Configuration & Multiple Displays

Note that if SLI configuration is enabled only a **Single** display may be used as the display device.

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Manage 3D Settings

You can configure the 3D **global settings** (to be applied to all application programs) or make specific adjustments for installed **program settings**.

1. Go to **NVIDIA Control Panel** (see page *C - 2*).
2. Click **Manage 3D Settings** and select either **Global Settings** or **Program Settings**.
3. Click the **Setting** menu items to select any global options required, or **select a program to customize** from the drop-down menu (click **Add** to add any program that does not appear in the menu).
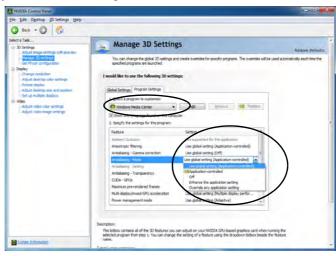4. Click **Apply** to save the settings.

Figure C - 13

Manage 3D Settings

Adjust Video Settings

You can adjust video color and image settings from the **Video** sub-menus.

1. Go to **NVIDIA Control Panel** (see page *C - 2*).
2. Click "**+**" next to **Video** if its sub-items are not shown and then click either **Adjust video color settings** or **Adjust video image settings**.
3. Make any adjustments required for any display and click **Apply** to save the settings.
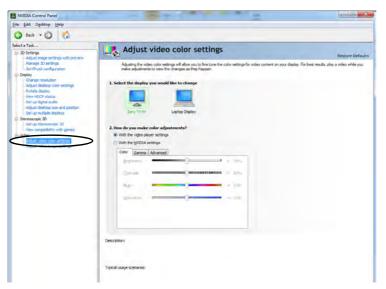

Figure C - 14

Adjust Video Color Settings

HDMI Audio Configuration

As HDMI (High-Definition Multimedia Interface) carries both **audio** and video signals you can configure the audio output from the **NVIDIA control panel** and **Sound** control panel. The settings will depend upon the external HDMI display you have connected to.

When you connect a display to the HDMI-Out Port then the **Set up digital audio** item will appear under **Display**. Click *"Change Windows Sound Settings"* (button) to access the **Sound** control panel.
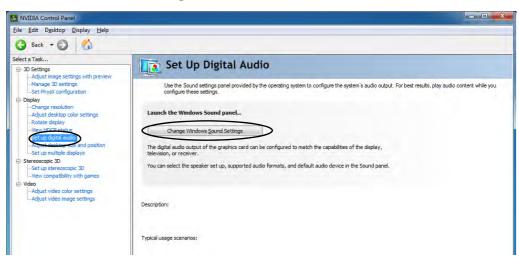
Figure C - 15
Set up Digital Audio

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Audio Setup for HDMI

In some cases it will be necessary to go to the Sound control panel and manually configure the HDMI audio output.

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Click **Sound** (**Hardware and Sound**).
3. Click **Playback** (tab)
4. The playback device will be selected.
5. You may need to select the audio device and click **Set Default** (button).
6. Double-click the device to access the control panel tabs.

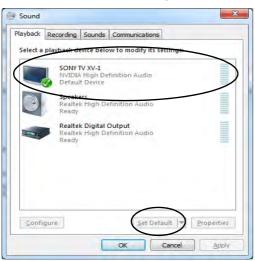*Figure C - 16*
Sound Playback Options

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7. Adjust the HDMI settings from the control panel tabs.
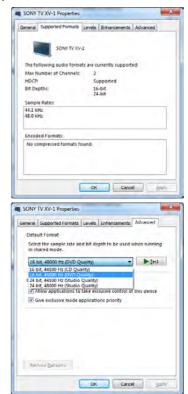8. Click **OK** to close the **Sound** ⊙ control panel.

Figure C - 17
HDMI Device Properties

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HDMI Notes

- Connect a device with HDMI support to the HDMI-Out port **BEFORE** attempting to play audio/video sources through the device.

- Under certain conditions, if the HDMI cable is disconnected, the default audio playback device will not revert to speakers until the computer is restarted (if you do not wish to restart the computer then go to the **Sound** control panel and select **Speakers** as the default audio playback device).

HDMI Video Configuration

1. Connect an HDMI cable from the HDMI-Out port to your external display.
2. Configure your external display as per the instructions in *"Configuring an External Display (NVIDIA)" on page C - 7*.
3. Set up your external display (TV or LCD) for HDMI input (see your display device manual).
4. You can now play video/audio sources through your external display.

THX TruStudio Pro & HDMI

1. When you connect an HDMI display to the HDMI-Out port, the THX TruStudio Pro controls will be disabled.
2. A warning box will pop-up and will prompt *"Do you want to select another audio device now?"*.
3. Click **No** to continue using the HDMI audio output from your external display (do not attempt to select another audio device when connected to the external HDMI display).

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Other Applications

If you are using a third party application to play DVDs etc. you will need to consult the application's documentation to see the appropriate audio configuration (the application must support digital to analog translation).

C

HDCP Status

If your external display is HDCP (High Bandwith Digital Content protection) compatible then the NVIDIA control panel will display the HDCP system status.
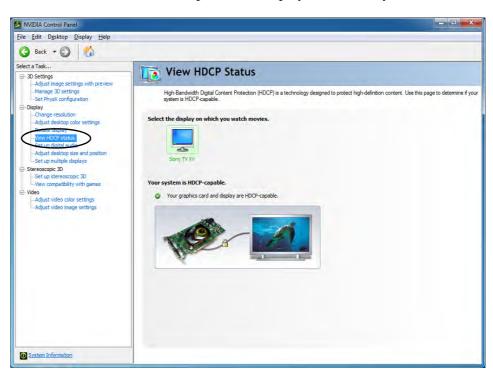
Figure C - 18
HDCP Status

NVIDIA 3D Shutter Glasses Kit

The **NVIDIA 3DVISION™ 2** shutter glasses kit is supported only by **Model B computers which include the built-in 3D emitter and shutter glasses kit**. Install the video driver as indicated in *"Video (VGA)" on page 4 - 6*.

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>
> **Important Safety Instructions**
>
> Make sure you read all the enclosed safety instructions and precautions included in the NVIDIA 3D Vision Kit before setting up the 3D Glasses and IR Emitter. Follow the setup instructions provided in the documentation to set up the 3D Vision kit safely and take the "**User Vision Test**," which will initiate when you turn on your GeForce 3D Vision for the first time. If you cannot see the image in 3D during the test, you should DISCONTINUE USE IMMEDIATELY. Continued use may result in health-related complications.

The NVIDIA 3DVISION shutter glasses kit is supplied with a single pair of shutter glasses and all necessary cables etc. Set up the hardware (run the set up wizard as indicated overleaf) as instructed in the manual supplied with the kit, however **make sure you have installed the NVIDIA driver from the *Device Drivers & Utilities + User's Manual disc***. For further details contact your service center.

After the NVIDIA driver has been installed you can setup NVIDIA 3D Vision.

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NVIDIA Driver

Install the NVIDIA driver (see *"Video (VGA)" on page 4 - 6*) from the *Device Drivers & Utilities + User's Manual disc* (to ensure compatibility).

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Stereoscopic 3D Hardware Setup

If your computer model features a **built-in 3D IR emitter the loa ct ion is illustrated below**. The effective viewing angles of the emitter are illustrated overleaf. Make sure that you are viewing the notebook screen within the area highlighted overleaf in order to get the proper stereoscopic 3D effect.

Figure C - 19
IR Emitter Location

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USB Connection & 3D Glasses

The light on the glasses will **flash amber while charging**, and **solid amber when fully charged**.

The glasses hold approximately 40 hours of viewing per full charge. **Flashing red** indicates that less than 2 hours of charge are remaining.

The indicator light displays for about 30 seconds after turning the glasses on

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Viewing Angles

The emitter's **horizontal** viewing angle is **100 degrees**.
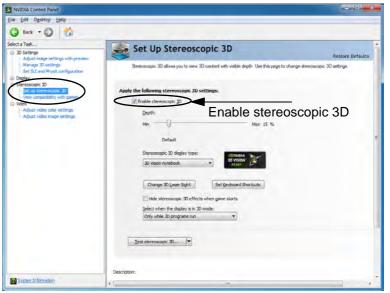The emitter's **vertical** viewing angle is **75 degrees**.

Figure C - 20
Emitter - Viewing Angles

Enable 3D Vision

You can enable 3D Vision if the NVIDIA control panel enclosed by clicking **Enable 3D Vision** from the **Start** menu.

Figure C - 21

Set Up Stereoscopic 3D

Set Up Stereoscopic 3D

1. Click **Start**, and click **Control Panel** (or point to **Settings** and click **Control Panel**).
2. Double-click **NVIDIA Control Panel** (click "**Classic View**" from the left of the menu if you are in **Control Panel Home**).
3. Double-click **Stereoscopic 3D** (if the sub-menus are not visible)**,** and then click **Set up Stereoscopic 3D**.
4. Click *Enable stereoscopic 3D* (tickbox) to enable 3D Vision.
5. Click **Apply** to save the setting.

Enable stereoscopic 3D

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6. Select the drop-down menu at the bottom of the screen to **Test stereoscopic 3D**.
7. Select *Run Setup Wizard* from the drop-down menu (you can also select *Run Medical Image Test* from this menu).
8. Follow the on-screen instructions to set up 3D Vision and click "**Next**" to progress through the steps (this notebook has a built-in emitter).
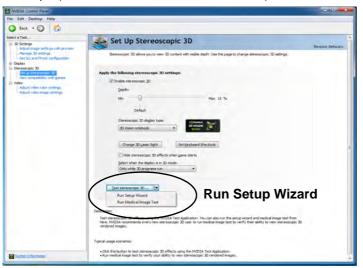

Figure C - 22

Set Up Stereoscopic 3D with Drop-Down Menu

9. During the setup procedure you will need to click to answer questions on what you see in 3D on the screen.
10. Configure the stereoscopic 3D from the control panels (make sure you charge the 3D shutter glasses by plugging them into one of the computer's USB ports using the USB cable provided).

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11. The stereoscopic depth may be adjusted by using the control panel slider.
12. Click **View Compatibility With Games** to check 3D support for any games.

Figure C - 23

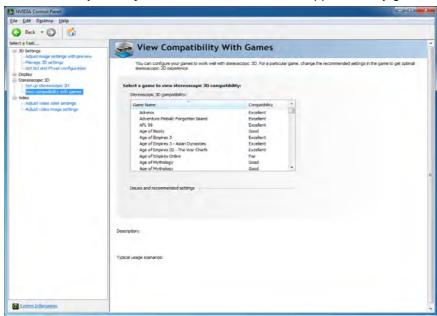**Compatibility With Games**

Appendix D: Specifications

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Latest Specification Information

The specifications listed in this Appendix are correct at the time of going to press. Certain items (particularly processor types/speeds and CD/DVD device types) may be changed, updated or delayed due to the manufacturer's release schedule. Check with your service center for details.

Specifications

Processor

Intel® Core i7-3960X (3.30GHz)
15MB L3 Cache, 32nm (32 Nanometer), DDR3-1600MHz, TDP 130W

Intel® Core i7-3930X (3.20GHz)
12MB L3 Cache, 32nm (32 Nanometer), DDR3-1600MHz, TDP 130W

Core Logic

Intel® X79 Express Chipset

Display

17.3" (46.94cm) FHD (1920 * 1080) 16:9 Backlit Panel

For **Model B** with 3D Support
Built-in 3D IR Emitter
One nVIDIA® 3D Vision™ 2 Shutter Glasses Kit

Memory

Four Channel **DDRIII (DDR3)**

Four 204 Pin SO-DIMM Sockets Supporting **DDRIII (DDR3) 1333/1600** MHz Memory Modules (real operational frequency depends on the FSB of the processor)

Memory Expandable up to 16GB
Compatible with 2GB or 4GB Modules

Video Adapter

nVIDIA® GeForce GTX 580M PCIe * 16 Video Card
2GB GDDR5 Video RAM On Board
Supports Microsoft DirectX® 11.0
MXM3.0 Type B
Supports DisplayPort 1.1a
nVIDIA PhysX™
GeForce CUDA™ Technology
Supports nVIDIA® SLI Technology

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For **Model B** with 3D Support
Supports 3DTV Play™

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>
> ### SLI Multi GPU Configuration & Power
>
> Note that an SLI configuration, with dual video adapters requires dual power adapters, connected to a power converter box, to power the system (see *"SLI Multi GPU Configuration & Power" on page C - 15*.

Video Adapter

<u>For Model A Only:</u>
nVIDIA® Quadro 5010M PCIe * 16 Video Card
4GB GDDR5 Video RAM On Board
Supports Microsoft DirectX® 11.0
MXM3.0 Type B
Supports DisplayPort 1.1a
nVIDIA PhysX™
GeForce CUDA™ Technology
Supports OpenGL 4.1

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BIOS

One 64Mb SPI Flash ROM
AMI BIOS

Storage

Up to three (**Factory Option**)
Changeable 2.5" 9.5 mm (h) **SATA**
(Serial) Hard Disk Drives supporting
RAID level 0/1/5

One 12.7 mm Super Multi/Blu-Ray
Combo/Blu-Ray Writer SATA Optical
Device Drive (**Factory Option**)

Audio

High Definition Audio
S/PDIF Digital Output
Built-In Microphone
5 Built-In Speakers
One built-in 3W Sub woofer
THX® TruStudio Pro Surround Sound
External 7.1CH Audio output supported
by headphone, microphone, S/PDIF &
Line-In Jack

Keyboard & Pointing Device

Full Size Winkey Illuminated Keyboard
with Numeric Keypad

Built-In TouchPad (with Multi Gesture
Functionality)

Six Touch Sensor Instant Keys (Volume
Up, Volume Down, Mute, WLAN,
Bluetooth & PC Camera)

W/A/S/D Gaming Keys

Card Reader

Embedded Multi-In-1 Card Reader
- MMC / RSMMC
- SD / Mini SD / SDHC / SDXC
- MS / MS Pro / MS Duo

Note: Some of these cards require PC
adapters that are usually supplied with
the cards.

Slots

One ExpressCard™ (34/54) Slot

One Mini Card Slot for WLAN & Bluetooth
Combo Half Mini-Card Module with PCIe
& USB Interface

Interface

Three USB 3.0 Ports (Including one AC/
DC Powered USB/ eSATA Combo Port)
Two USB 2.0 Ports
One eSATA Port (SATA Interface, C/DC
Powered USB 3.0 Combo)
One Mini-IEEE1394b Port
One DisplayPort (Version is Video
Controller Dependant)
One DVI-I Out Port (Single Link)
One HDMI (High-Definition Multimedia
Interface) 1.4a Out Port (with HDCP
Support)
One Headphone/Speaker-Out Jack
One Microphone-In Jack
One S/PDIF Out Jack
One Line-In Jack
One RJ-45 LAN Jack
One DC-In Jack

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Specifications

Communication

Built-In 10/100/100 Base-TX Ethernet LAN

Intel® Centrino® Ultimate-N 6300 3*3 (802.11 a/g/n) Half Mini-Card PCIe WLAN Module (**Factory Option**)

Intel® Centrino® Advanced-N 6230 2*2 (802.11 a/g/n) Half Mini-Card PCIe WLAN + Bluetooth V3.0+HS Combo Module (**Factory Option**)

802.11b/g/n Wireless LAN Half Mini-Card Module (**Factory Option**)

Combo WLAN (802.11b/g/n) **and Bluetooth v3.0** Half Mini-Card Module (**Factory Option**)

Bluetooth 2.1 + EDR (Enhanced Data Rate) Module (**Factory Option**)

2.0M Pixel FHD PC Video Camera Module

2.0M Pixel PC Video Camera Module (**Factory Option**)

Security

Security (Kensington® Type) Lock Slot
BIOS Password
Fingerprint Reader Module
Trusted Platform Module 1.2

Operating System

Windows® 7 with Service Pack 1

Design Feature

Alloy Plate

Power Management

Supports Wake on LAN
Supports Wake on USB

Power

Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 20V, 15A (**300 Watts**)

Removable Polymer Smart Li-Ion 78.44WH Battery Pack

Power Converter Box (**Factory Option**)

Environmental Spec

Temperature
Operating: 10°C - 35°C
Non-Operating: -20°C - 60°C
Relative Humidity
Operating: 20% - 80%
Non-Operating: 10% - 90%

Physical Dimensions & Weight

419mm (w) * 286mm (d) * 57.9mm - 62.1mm (h)
5.5kg with Single VGA Card, Battery and ODD

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